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AMERICAN ACADEMY
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JULY - AUGUST
1954

Volume 58 Number 4

ANNUAL MEETING, SEPTEMBER 19-24, 1954, NEW YORK

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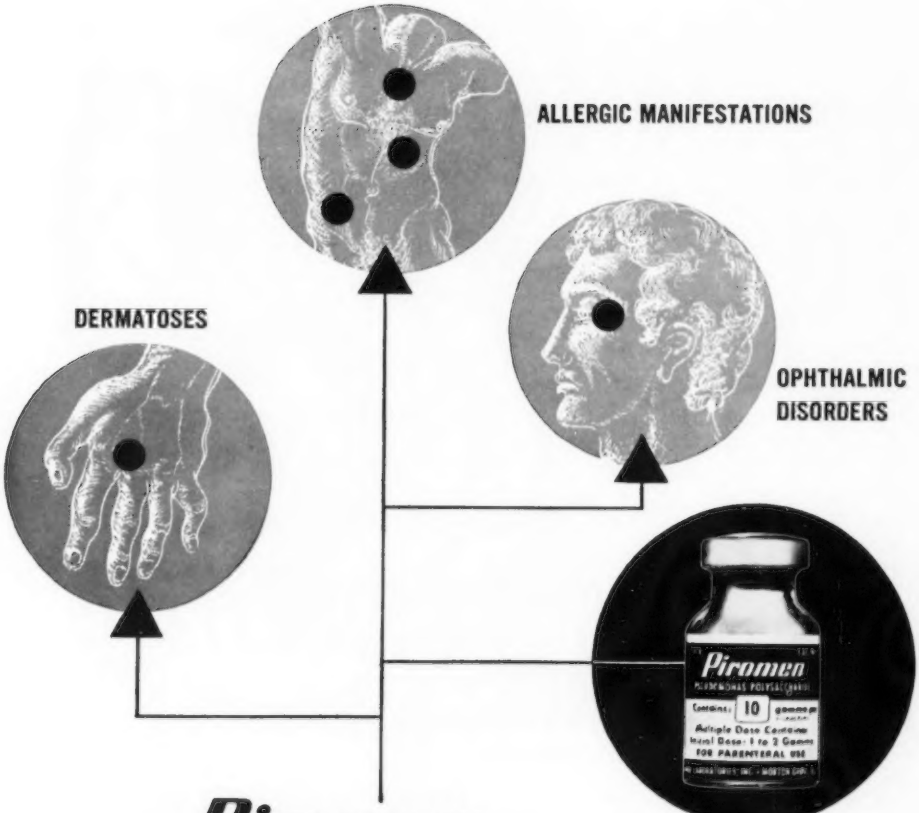

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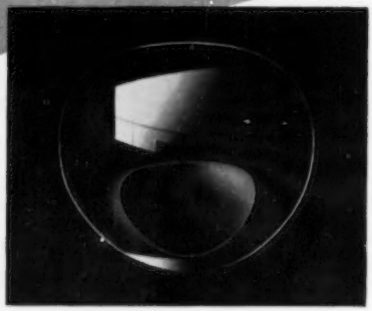

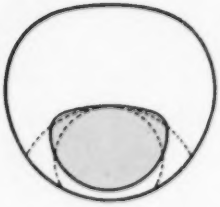

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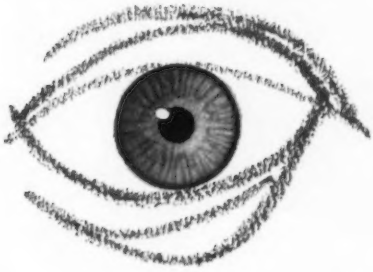

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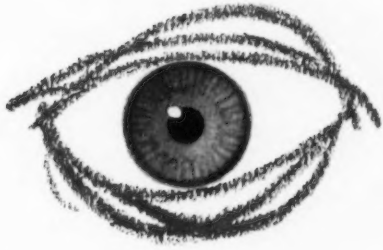

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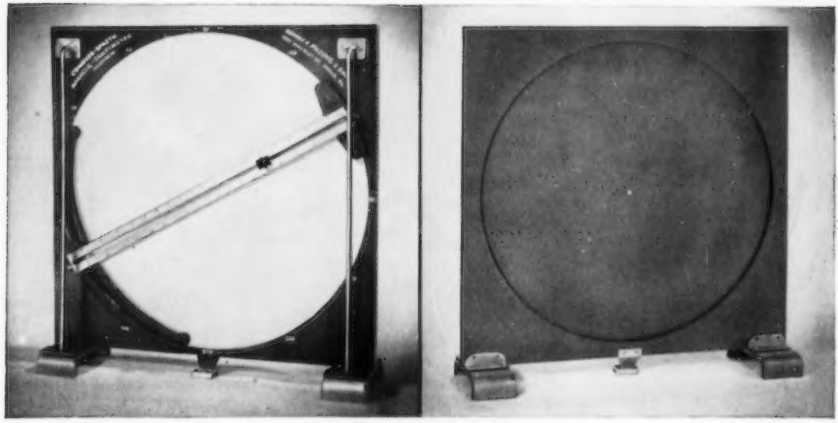

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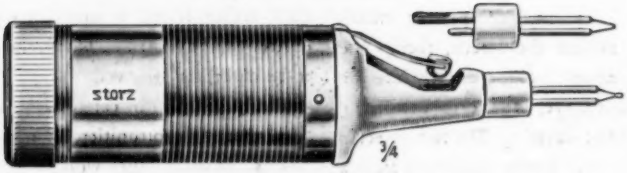

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BY INVITATION

IN THE time allotted to me I shall direct your attention to that portion of the framework of the central nervous system which may be considered essential in the interpretation and understanding of tinnitus.

First, then, the *definition:* Tinnitus from a bioanatomic point of view is more than the meaning embraced by a specific kind of sound identified as ringing, buzzing or other quality; it has many meanings. Initially it may be a modification or an alteration of one of the several modalities of sensation, for example, an altered quality of tactile or pain impulses. On the other hand, it may be a clinical symptom-complex into which are fused the three components of sensation, emotion and experience, in which case tinnitus exhibits both cognitive and affective manifestations related to the cerebral cortex, the thalamus and the hypothalamus. Again, tinnitus may be looked upon as a form of pain similar to itching; inasmuch as the patient cannot scratch the area involved, his total personality is undermined.

My second point rests upon the *organismal concept* of sound perception. Viewed from this angle, tinnitus presents itself as a symptom-complex which results from the incoordinated action of three elements of a tripod; namely, the neuronal, the hormonal and the humoral (fig. 1). It appears that the clinician's position is vastly strengthened if he is aware of the particular somatotype of his patient. For example, does the patient give evidence of an endocrine complex (hormonal)

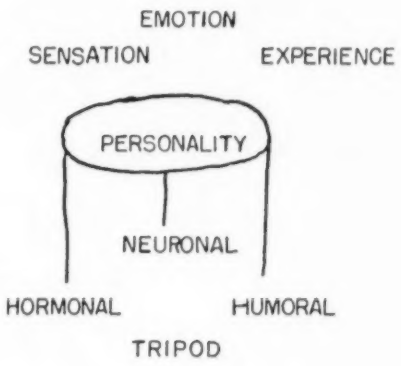

FIGURE 1.

involving the pituitary gland or the thyroid gland? Again, does this patient give evidence of an autonomic-somatic imbalance (humoral) in which the sympathetic or the parasympathetic reactions are dominant? Having judged this patient from the hormonal and the humoral standpoint, it remains to consider the acoustic neuronal pathway to determine the site of the tinnitus. This organismal concept underscores the fact that the personality of one afflicted with tinnitus should be diagnostically examined both analytically and synoptically. Such an approach will

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bring out the patient's attitude toward pain and feeling and it will further establish whether his nervous system is poorly, moderately or fully integrated. Taking the first letter of each term used in the organismal concept, namely, *p*ersonality, *a*ttitude, *i*ntegration and *n*ervous system, it spells out the word pain, one manifestation of tinnitus (fig. 2).

FIGURE 2.

The *hierarchy* of the *central nervous system* is the third point to which I would direct your attention. This expression is obviously to be understood as a totality of functional interrelations between the various parts of the nervous system rather than as a separate functioning of its different levels. Every physician must inevitably employ the Darwinian point of view in arriving at a diagnosis of tinnitus. That is to say, he must think of the human nervous system as a spinal cord to which has been added phylogenetically the brain stem, the subcortical areas and the cerebral cortex. Such an outlook throws light upon the behavioristic reactions of a person suffering with tinnitus, since more than one level of the hierarchy may be involved. A study of the oversimplified diagram represented in figure 3 shows the varying levels of the central nervous system from the spinal cord to the cerebral cortex. This sketch indicates only certain areas of the lateral surface of the cerebral cortex, upon which has been superimposed certain parts of the medial surface. The *somaesthetic* area (postcentral gyrus) is the terminus for all exteroceptive and proprioceptive impulses. The *thalamus* is the main secondary center for the reception of all modalities of sensation and represents, in addition, a main affective, synergic area. This latter point suggests that the sensation of a buzzing or a ringing sound may, and usually does, have superimposed upon it an effective quality disturbing to the entire personality. The *hypothalamus* is well known to be intimately related to the pituitary gland; consequently, this nerve-endocrine complex serves as a great integrating mechanism, particularly on the emotional expressive level. The *frontal lobe*, anterior to the motor area, is significant in interpreting the attitudinal reactions of a patient and in modifying his experience toward the distressing tinnitus. The *visceral brain* is here meant to include the orbito-cingulo-insulo-temporal area, and it is this part of the frontal lobe which may give rise to autonomic responses to tinnitus. The ascending *reticular* activating *substance* is a meshwork of cells and interlacing fibers which are found in all levels of the brain stem and must be considered an important mechanism in the maintenance or in the disturbance of the homeostatic condition of the nervous system. Tinnitus may affect this system, resulting in widespread reflexes. The lateral lemniscus comes into contact with this reticular system.

The *acoustic pathway* involves the following parts which are schematically shown in figure 3: the end organ of Corti, spiral ganglion, acoustic nerve, acoustic nuclei of reception, ascending

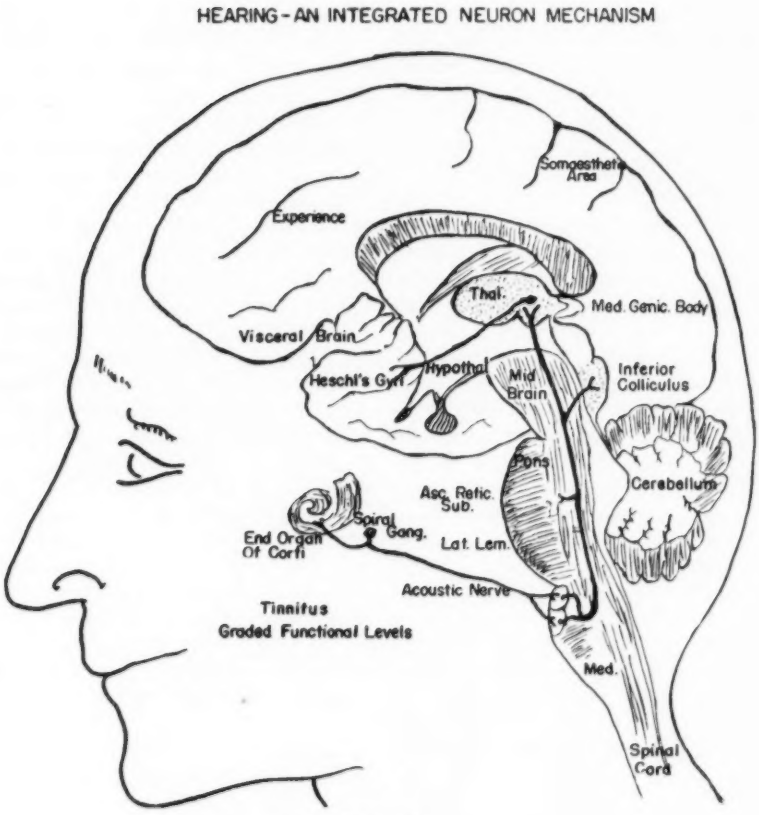

FIGURE 3.

reticular substance, lateral lemniscus, inferior colliculus, medial geniculate body and superior temporal gyrus (Heschl's convolutions). In connection with these elements, it will be clinically profitable to keep in mind certain *levels of integration.* Such levels of integration are, first, the thalamus, which as previously stated adds an affective quality to the sensation of tinnitus; second, the hypothalamus, which as an emotional expressive area may add autonomic symptoms to the tinnitus such as sweating, lacrimation and vascular changes; third, the visceral brain which plays an important part in the total reaction of the patient in so far as it may mask the sensory component of tinnitus. Glancing back upon the bioanatomic points stressed in this brief discussion, it may be seen that the perception of hearing, or its disturbance in the form of tinnitus, is more than just the mere reception of sound vibrations, just as, for example, skin sensation is frequently more than skin deep. Furthermore, while the end organ of Corti may be the most frequent offending organ in tinnitus, yet

the anatomic substratum of the parts shown in figure 3 clearly indicates that the central acoustic nuclei, the lateral lemniscus, the reticular substance and the varying levels of integration may require special consideration in the breakdown of the nervous system which results in tinnitus.

In summary, then, tinnitus is to be considered not only as a modification of one type of sensation but from the point of view of the hierarchy of the central nervous system, it is diagnostically advantageous to keep in mind the additional components of emotion (hypothalamus), experience (frontal lobe) and autonomic reactions (visceral brain). Consequently, in taking a careful history of a patient complaining of tinnitus one must take into account not only the lesion which may be localized in the peripheral or central part of the auditory pathway but also, on the basis of the hierarchy of the nervous system, one must evaluate the perception and the reactions to tinnitus in terms of what may be happening to the higher levels of integration. It is this bioanatomic approach to the coordinating and governing mechanisms of the central nervous system which will give greater insight into the somatic and the autonomic symptomatology in one suffering from tinnitus.

Symposium: Tinnitus — New Concepts in Etiology and Management

PHYSIOLOGIC ASPECTS

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BY INVITATION

THIS discussion is confined to "true" tinnitus, which implies that nerve impulses are passing up the eighth nerve, or at least up the auditory pathways from the medulla to the thalamus and cortex. Spontaneous nerve impulses, that is, nerve impulses that were quite independent of such minor noises as were present in the experimental rooms, were demonstrated by Galambos and Davis[4] in the second-order neurons of the cochlear nucleus of the cat, and more recently by Tasaki[5] in the primary neurons of the guinea pig. Humans with normal hearing always experience slight tinnitus when they enter a really quiet room. A small amount of tinnitus should probably be regarded as a normal phenomenon.

On general physiologic principles, a slow resting discharge from a sense organ is to be expected if that sense organ is to have the greatest possible sensitivity, that is, if it is to vary its output in response to a minimal amount of additional energy. If the sensory element is already active at a slow rate, the rate of discharge can be increased without encountering any threshold effect.

Spontaneous rhythmic activity is a well-recognized feature of cardiac muscle and is probably wide-spread in the central nervous system.

The speaker's theoretic interpretation of excitation of the auditory nerve[1-3] makes spontaneous activity very plausible. The scala media and the hair cells are believed to provide an electric current which is varied in strength by the movements of the hairs of the hair cells. The variations in current are the basis of the cochlear microphonic (the Wever and Bray effect). This alternating current excites nerve impulses, but the steady current flow also may be strong enough to excite a slow "spontaneous" discharge which would be the basis of tinnitus. The resting DC potential of the scala media, which von Békésy[7] and Tasaki[6] have found to be 80 millivolts positive relative to scala vestibuli and scala tympani, is the electromotive force causing the postulated DC current flow. The speaker further believes that there must be some regulatory mechanism to adjust the excitability of the nerve fiber and the strength of the resting current to levels very close to the threshold of stimulation. Disturbance of this "homeostatic" mechanism in one direction would cause loss of sensitivity. Disturbance in the opposite direction would give tinnitus. One way in which the balance can be upset in the latter direction is the mild irritation which is produced by exposure to very loud sound. A steady mechanical pressure that causes a slight permanent displacement of the tectorial membrane in the proper direction relative to the hair cells could also be expected to cause tinnitus.

From the Central Institute for the Deaf.
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* Dr. Davis was made an Honorary Fellow of the Academy, Oct. 15, 1953.

There is no particular reason, on this theory, to expect tinnitus as a result of anoxia, and the speaker believes that theories relating tinnitus to vascular spasm of the stria vascularis are probably on the wrong track. He believes that the basis of tinnitus is to be sought in disturbances of the postulated regulatory mechanism for the excitability of the sense organ, but the metabolic and pharmacologic conditions that may favor or prevent tinnitus cannot be defined, except empirically, until more is known about the mechanism of excitation in the organ of Corti.

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Symposium: Tinnitus — New Concepts in Etiology and Management

OTOLOGIC ASPECTS

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TINNITUS is a complex otologic phenomenon. Its diversity of origin and multiple modifications can be inferred from the excellent descriptions of the previous speakers. To the otologist, tinnitus has always been a challenge, and to the patient it has been a great source of misery through the ages.

In the present discussion the subjects of tinnitus cranii or tinnitus cerebri and objective tinnitus due to vascular or muscular tympanic lesions will be omitted. The discussion will be limited to true tinnitus, which has also been described as nonvibratory, subjective and intrinsic.

In the consideration of this most common type of tinnitus, it is helpful to differentiate two basic physiologic subdivisions which are quite different anatomically and functionally.

The first subdivision may be described as unmasked visceral tinnitus. This tinnitus usually originates in the tympanic region and is usually the sequel of a conduction of impedance lesion. It is caused by the removal of the normal masking effect of surrounding ambient noise and is usually produced by subaudible tympanic and peritympanic vascular and muscular noises. This is the type of tinnitus one meets most commonly in uncomplicated otosclerosis, tympanic fibrosis and chronic catarrhal otitis with or without perforation. It is also frequently found in glomus jugulare and other tympanic tumors.

The second physiologic type of tinnitus is more common and might be described as neural discharge tinnitus of either cochlear or central origin. This is a suprathreshold auditory paresthesia. In this type there is cerebral recognition of auditory stimuli produced by mechanical cochlear deformation or electrochemical neural hyperirritability in the auditory pathways. This is the type seen in stimulation (traumatic) deafness, some types of presbycusis, Ménière's disease (labyrinthine hydrops), acoustic neuroma, and in many other lesions involving either the cochlea or any of the neural elements of the auditory pathways.

In addition to the above differentiation, which is important from a localization and management point of view, we must also differentiate tinnitus clinically into compensated and decompensated forms. Compensated tinnitus is present in much of the population. It accompanies the high incidence of minimal cochlear lesions due to various etiologic factors which are productive of neural discharge tinnitus. In most of these instances the tinnitus is not even noticeable to the patient, except under extremely quiet circumstances. It is not a clinical problem but merely a curiosity.

From the Department of Otolaryngology, University of Southern California, School of Medicine.
Presented at the Fifty-Eighth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 11-16, 1953, Chicago, Ill.

Decompensated tinnitus may be used as a term to describe tinnitus that is recognized as a problem by the patient. There are two types of otologic problems that will produce decompensated tinnitus. The first is tinnitus of low acoustic intensity accompanied by some type of psychosomatic stress. The second is tinnitus of actually high acoustic intensity as measured by comparative methods in a tinnitus analysis study. It is the patient with decompensated tinnitus who is really the subject of our discussions today. He is the one who comes for help primarily because of the tinnitus. His other otologic symptoms are frequently subdued and minimized in the history. The tinnitus itself looms as the chief complaint and is the subjective symptom requiring specific otologic management.

As in other medical problems, but especially true in subjective phenomena, a double diagnosis must always be considered: (a) the actual organic etiologic otologic lesion and (b) the psychosomatic status of the patient. The latter must take into consideration both the emotional threshold of the patient and specific anxiety states and phobias. This double diagnostic attack is distinctly the responsibility of the otologist and cannot be shifted to another physician.

The fallacy that tinnitus is a specific otologic disease has been strengthened and amplified by the numerous papers relating to treatment of tinnitus in which the therapy, be it surgical or medical, is directed to the general subject of tinnitus as a pathologic entity. The clinical retention of such a concept will do nothing to advance our knowledge in this field but will deter and retard scientific investigations and logical evaluation of therapeutic technics. Almost any otologic disease can be accompanied by tinnitus. It is necessary to evaluate the position of tinnitus as a component of that specific disease.

It may be interesting to review briefly some typical organic otologic lesions which may cause tinnitus:

1. *Middle ear*
   - Membrana tympani—perforation, adhesive fibrosis, flaccidity
   - Fluid collections—hemotympanum, serous effusion, purulent exudate, mucoid exudate
   - Muscular—spasms, tics
   - Vascular—anomalies, anemia, polycythemia
   - Ossicular—joint disturbances, fixation (otosclerosis)
   - Tumors—glomus jugulare, hemangioma, carcinoma
   - Cholesteatomas—several types
2. *Inner ear*
   - Bony labyrinth—Paget's disease, otosclerosis, fragilitas ossium
   - Perilymph diseases—inflammatory, chemical, edema
   - Endolymph diseases—hydrops, collapse
   - Organ of Corti—peripheral neuritis, atrophy, edema, allergy
   - Cochlear ganglion—ganglionitis, allergy, atrophy
   - Eighth nerve—tumors, inflammation, vascular anomalies
3. *Central auditory pathway*

Second order neurons—	Tumors, vascular and circulatory anomalies, focal inflammatory lesions
Third order neurons—	
Ventral and dorsal cochlear nuclei—	
Lateral lemniscus tract—	
Medial geniculate body—	
Auditory cortex—	

Following the double diagnostic evaluation of the problem in which the organic diagnosis is accompanied by a psychosomatic evaluation of the patient, the management of decompensated tinnitus may be divided into the following steps:

1. *Specific Otologic Therapy*

It is important at the present time to re-evaluate critically many of the therapeutic technics previously suggested to avoid therapeutic nihilism as well as mythical tinnitus cures. The organic otologic disease focus in such a case must be approached with the idea of therapy directed specifically to eradication of the tinnitus. In most instances, such therapeutic technics will also improve the hearing. There are situations, however, when only a slight hearing improvement induced by a particular therapy may be accompanied by a major diminution of tinnitus intensity. It should be the tinnitus that receives the stress of our therapeutic attack, rather than other considerations.

For example, the annoying pulsating visceral tinnitus of a tympanic glomus jugulare will usually disappear following surgical removal, yet the hearing may be poorer.

2. *Palliative Measures*

Simple reassurance as to the reality of the tinnitus accompanied by encouragement and good prognosis, will go far in helping alleviate the anxieties of the patient with decompensated tinnitus.

3. *Sound Sedation*

Sound sedation is very helpful in many cases of tinnitus, especially in regard to the difficulty in sleep, which is a great problem with many patients. The reason for greater difficulty at that time is, of course, due to the removal of ambient masking noise in the quiet of the evening, which allows greater cerebral irritability by the ever-present auditory paresthesia. The use of a bedside or pillow radio or phonograph speaker is very helpful in providing an artificial source of ambient noise to mask out the subjective tinnitus.

4. *Drug Sedation*

Drug sedation is an important palliative measure, not only for daytime use but especially for bedtime tinnitus irritability. In this light it is valuable to rotate the simple barbiturates, bromides and other substitutes. No one drug should be used for any long period. It is helpful psychologically to disguise the vehicles and to alternate the medications so that habituation and recognition by the patient are decreased.

5. *Surface Psychotherapy*

In most instances where the decompensated tinnitus is due to high intensity acoustically with little or no psychosomatic component, no further measures are necessary. In instances where the decompensated tinnitus is accompanied by major psychologic stresses and strains, a certain degree of surface psychotherapy by the otologist is helpful. Such surface psychotherapy should include a thorough explanation as to the real nature of tinnitus with assurance that it is neither an hallucination nor an illusion. Any expressed phobias should be carefully denied. An optimistic prognosis regarding duration and severity is not only justifiable but very helpful psychologically. A brief inquiry into personal problems may uncover the existence of major psychologic problems. In some instances, deep psychologic therapy at the hands of a psychiatrist is indicated.

6. *Major Psychotherapy*

Deep psychotherapy in psychiatric hands is indicated in every case of organized, symbolic, verbal or musical tinnitus. It is also indicated where surface psychotherapy, as described above, has not solved the decompensated tinnitus problem. Where deep psychotherapy is necessary, adequate otologic supportive therapy should not be denied the patient while he is under psychiatric management.

RESEARCH

Research into the problem of tinnitus has been scant indeed. There is little recorded information in otologic literature on research technics in either the genesis or the treatment of this annoying subjective symptom. Three lines of investigation appear to be necessary and are underway at the present time.

1. A more precise method of tinnitus analysis with the use of artificial tinnitus mimicry records, along with sweep frequency audiometry, is underway at the present time. It is hoped that such subjective comparative studies will yield information which will enable the otologist to make a more definitive localization diagnosis with information which can be coupled with otoscopic, audiometric, vestibular, roentgen and other studies. Such a tinnitus analysis should consist of a methodical plan as follows: (1) Anatomic location of the tinnitus by patient (i.e., in ears or head); (2) time relations of tinnitus; (3) positional relations of tinnitus; and (4) acoustic analysis. Relative to the acoustic analysis, (a) if the tinnitus is a pure tone, sweep frequency identification of pitch should be determined. Intensity matching and masking intensity should also be evaluated; (b) if the tinnitus is a complex tone, an attempt at differential tonal analysis should be made; and (c) if the tinnitus is diffuse in nature, a comparison subjectively with tinnitus mimicry recordings may yield interesting data.

2. Another research direction underway at the present time is a search for drugs which might have specific advantages as tinnitus sedatives. It is possible that certain groups of drugs may have specific sedation effects on auditory paresthesia. Specific sedation technics are now being studied pharmacologically. Great strides have been made recently in antiepileptic and antivertigo drugs which are in wide use today. Analogues of some of these drugs are under investigation by the writer and his colleagues at the present time for their possible value in tinnitus sedation.

3. A number of surgical technics have been advocated in recent years in the treatment of tinnitus. Further study of these technics for more precise evaluation is in order. It is important in all research studies that the basic concept of tinnitus as a symptom of otologic disease be always kept in mind and that no therapeutic regimen be advocated for tinnitus as a pathologic entity.

The treatment of tinnitus as a disease is an illogical dream, but the management of the patient with tinnitus is an everyday otologic necessity.

I am indebted to my colleagues, Dr. Benjamin Spector and Dr. Hallowell Davis for very scholarly, erudite, and practical contributions to the study of an important otologic problem.

SYMPOSIUM: POSTNASAL DISCHARGE

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LAWRENCE R. BOIES, M.D.
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LEWIS F. MORRISON, M.D.
SAN FRANCISCO, CALIF.

DR. PROETZ: Postnasal discharge—"drip" to you—is mostly innocuous; some of it is dangerous; a little of it can be very informative by giving some indication of serious processes going on where we cannot see them. A few years ago the laity got very much excited about postnasal "drip," and in self-defense the laryngologists began to shrug off the whole business. They tired of hearing people tell how they spent the morning trying to keep a little secretion from going down into their digestive tracts, and explained to them that digestive tracts, being full of mucus anyway, could stand it.

But there are cases in which attention to the discharge is indicated and, as I said before, there are times when it can be very informative. So the physician should not shrug it off, at least not to himself.

Let it be understood that we are talking to doctors and not to laymen. If we begin again to say to our lay friends that there is a percentage of cases in which we can recognize cancer, they are going back to their corners again to worry some more. So let us keep this among ourselves, among the thousands of us who are here, and not begin to get the thing started all over again by telling the patient details concerning which he does not have any understanding or any judgment.

A certain amount, in fact a large amount, of postnasal discharge is normal. The nasal mucosa throws off approximately one liter of water a day, less than half of which is consumed in moistening air, so that there is a half liter of water which goes down the drain. It goes down unnoticed until something happens to it. We pay no attention to it unless it becomes either excessive or too viscous, or too thin, or malodorous or obstructive. Then we begin to regard it as postnasal discharge. There are a great many factors involved in producing some of these abnormalities.

The first etiologic factor, the effect of dry central heating, will be discussed by Dr. Boies.

DRY CENTRAL HEATING

DR. BOIES: I live in a "northern climate" where many residents while indoors are in an atmosphere of superheated air. Those of you who practice in areas where the winters are cold and have called on the sick in apartments or homes will know what I mean. Or if you have entered office space in the older type of building without air-conditioning, you have encountered the warm dry air that is so striking, particularly when an office is first opened in the morning. What happens with pro-

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longed exposure to this type of air? One would naturally expect some evaporation of water from the content of mucus lining the upper respiratory tract. That should naturally mean an increase in the viscosity of this mucus, then some impairment of ciliary action, and then an accumulation of mucus.

I have a middle-aged patient who is a dentist. His chief complaint is his dry nose and postnasal discharge. He lives in a superheated, under-humidified home, and when he comes to his office in the morning, where he works all day, he finds his office very hot. In the early winter he usually takes a three-week vacation for deer hunting. During this period he is out-of-doors, exercising, and away from the stress of his work and his usual activities. During the year in which I first observed him, he came back from this trip and said, "About two or three days after I got up there my head cleared up and I had no further trouble. Now I am back home and it has started all over again. What can you do about it?"

Possibly there are other factors in the production of his type of secretion, but I am sure that superheated air and lack of humidification are important in his case. Of course the remedy is obvious.

I see many patients with this sort of complaint and they all want a prescription. Sometimes I prescribe some nose drops according to the formula of Dr. Proetz, who I will now ask to comment on this treatment.

DR. PROETZ: This solution is what I call AGS drops. It contains a little alcohol, a little glycerine, and 0.9 per cent sodium chloride. For convenience, we will say 3 per cent alcohol, 6 per cent glycerine, and 0.9 per cent sodium chloride. That is all there is to it. For some inexplicable reason the solution has a stagnant odor, so I put in a couple of drops of spirits of cologne or some other harmless scent. It is a good idea to color it as well. I use sunset yellow because I have demonstrated it to be harmless. The reason for the coloring is to distinguish it from any vasoconstrictor drops which the patient may have on the shelf, because he uses several times as much of this solution as he would of the vasoconstrictor. If a little more stimulation is indicated, I add a little more alcohol. The membrane will tolerate alcohol up to about 18 per cent. So there is plenty of leeway.

DR. MORRISON: Before we drop this subject I should like to bring up one thing. That is the matter of morning discomfort with postnasal discharge. It is not just a matter of being annoyed in the bathroom at home. Sometimes it causes considerable trouble to the man on his way down to his office, even to the point of being nauseating and at times causing him to lose his breakfast. I think it is very difficult to explain, to the male patient anyhow, the reason for morning sickness.

DR. BOIES: As I have already stated, I find that most patients want some form of treatment. I am inclined to give them something to do, particularly in the mild cases. I suggest that they give their nasal space and the back of their throats a "Turkish bath." The idea of a "Turkish bath" seems to appeal to them. I instruct them to fill a washbowl with clean hot water, to take a Turkish towel and, keeping the water hot, to use the towel as a pack over the nose and mouth and breathe in the warm, moist air for twenty minutes every night before going to bed.

It is quite a chore to watch a clock for twenty minutes, but it seems to be a satisfying treatment.

DR. PROETZ: There is another phase to this: the patient who comes to you and says, "I am going to build a new house. What shall I tell the engineer is required in the way of heating, cooling and humidification?"

We are told that optimum humidity is about 40 to 45 per cent. In cold climates in winter that is very difficult, if not impossible, to maintain. It requires double windows. Otherwise, before anything like that humidity is reached, moisture will condense on the windows and run down on the wallpaper. An effective humidification system requires adequate insulation. It is easy to say, "Get a humidifier," but it is a most difficult thing to make it humidify a house. All sorts of things get in the way. If there is atomizing equipment, calcium in the water stops up the contraption; or it goes up into the house and the grand piano is covered with a fine white dust. One cannot economically supply distilled water to that kind of a system.

TOBACCO

DR. MORRISON: Being fairly well qualified to know what happens with the use of tobacco, with some forty-four years of use, I have only this to offer: It is definitely irritating. You are not going to stop patients from smoking, but you can encourage them to do one thing, and that is when you examine their nose and you see this layer of tar around the vibrissae, you can encourage them not to play Lady Dragon by exhaling or blowing the smoke out of their nose. It is not a courteous thing to do. It does not enhance the value one bit. They can still inhale and blow the smoke out of their mouth. They often do not see the value of doing this because they can clean the end of their nose with a handkerchief and that does not bother too much. However, you can make your point by asking them if they remember ever having sat by a campfire when the smoke curled up in their eyes and stung severely, even to the point where they had to rub their eyes. The smoke is just as irritating to the mucous membrane of the nose. The only difference is that the nose is not quite as richly endowed with pain-sensitive fibers and it does not sting as much, and so they go ahead and blow the smoke out of their nose.

Another thought along that line, of course, is the matter of nicotine and tar. A number of us do not realize that nicotine is a highly volatile, colorless oil. The oxide that is produced by burning is insoluble in water. So the question of how much nicotine goes where is open. The main irritating factors, of course, are the creosols and tars that are produced. They are irritating, and as long as one persists in blowing smoke through his nose, he is merely adding one more factor to that postnasal discharge.

DR. BOIES: Do you think filtering cigarette smoke is any advantage?

DR. MORRISON: It is undoubtedly a help. An umbrella that has only a few holes in it will keep out most of the rain.

DR. PROETZ: I think Dr. Morrison has put his finger on it. If you filter out the tar from cigarettes, you filter out the smoke. That is what the smoke is made of. If you have any doubt, take eight cigarettes and tie them together with Scotch tape and make one long cigarette, eight cigarettes long, and try to smoke it. You will get a furious blaze on one end and nothing will come out at the other. In other words, you now have a 100 per cent filter. It occurs to me that might be a good thing to do. You can cut your smoking down to almost any predetermined amount just by adding from one to eight cigarettes. Try it and see.

DR. BOIES: In other words, you would recommend a super "king size"?

ALCOHOL

DR. PROETZ: I will discuss the subject of alcohol from two angles: the pharmacologic effect of alcohol on the nasal mucosa and the effect of the local application of alcohol.

I will not go into the general reactions except to say that one of the outstanding results of the ingestion of alcohol is the dilatation of the superficial blood vessels. The result of that dilatation is hyperemia, and the result of hyperemia is excessive secretion of the glands. The nasal secretion is not only excessive; in many cases it is otherwise not quite normal. It becomes very viscous, and taking a little more alcohol than average will result in a stringy, heavy secretion which may not be dislodged until the next morning. The cilia have difficulty moving it. It accumulates in the nasopharynx during the night, and some of this morning sickness that Dr. Morrison was talking about is the substitute for the evening sickness which didn't occur last night because the man didn't drink enough. Ask the man who has that symptom whether he drinks. He will say, "Oh, three or four bottles of beer before I go to bed." The result is hyperemia. Any other agent that produces a similar hyperemia will do about the same thing.

As to the local effect, of course, alcohol is an irritant. This is utilized in certain nose drops, as I have indicated. It is harmless for the short time it lasts. If one uses any other type of stimulant in the nose it stays there until it is carried off by the secretions. However, local alcohol causes a momentary stimulation which starts the glands working, then it evaporates and gets out of the way. I would say that that solution is exactly opposite in its effect to the vasoconstrictors. The patient who needs ephedrine drops in the morning often does better on the AGS solution. The alcohol makes his nose run more instead of less and it thins the secretions rather than thickens them.

DR. MORRISON: Often the patient who complains of postnasal discharge really represents a paradox. He does not have enough secretion. If he had some more, it would probably be thinner and he would not notice it. It is only when it moves along sufficiently slowly that it piles up on the top part of his uvula or his nasopharynx, where he can really get hold of it, that he notices that he does have postnasal discharge. In certain of those instances it has worked out very well to give something to increase the amount of secretion. Whether you use potassium iodide, and take chances of a rash, or ammonium chloride or some of the other things that are less active is beside the point. If you will increase the individual's secretions, he will no longer have his postnasal discharge, primarily because he cannot find it to get hold of it.

DR. BOIES: One other angle about alcohol. I think the person who uses it a little excessively sometimes gets a dehydrating effect, and this glue that occurs in the nasopharynx the morning after one has had, say, three martinis, might be from the effects of dehydration.

BODY THERMAL CHANGES

In regard to body thermal changes, again I am going back to a northern climate. In the winter months in this area, the average person lives in a home that is heated to approximately 70 degrees, and when he leaves his home he steps into an atmosphere in which the temperature is around freezing, or often at the zero mark, and sometimes consider-

ably below. His nasal respiratory mucosa reacts and adapts quickly, but I am sure that hypersecretion of mucus usually occurs.

Then there is the matter of chilling of the body surface. I remember some of the experiments that were done in a study of the common cold. I think it was Mudd who had a patient put his feet in ice water while the draft from an electric fan was turned on his back. As I recall, his nasal mucosa became congested and there resulted a hypersecretion of mucus.

We once had a fad about sleeping in cold air. I recall an experience in college when I slept on a partially open sleeping porch on a lake front. Immobile under a pile of blankets and with a stocking cap on my head, I was anything but rested when morning came, and my nose was usually plugged. This was supposed to be a healthy environment. I have advised many patients subject to upper respiratory tract infections to avoid sleeping in a cold room, and have had them experience a lessened tendency to nasal congestion.

Then, of course, there can be some ill effects of air-conditioning. I have had patients seek relief from the heat by going to air-conditioned theaters to cool off. A man in his shirt sleeves and a woman lightly clad will sit for two or three hours in a temperature as much as 30 degrees under the temperature out-of-doors, and then return to the heat. Likewise, some spend eight hours in air-conditioned offices and then sixteen hours in a much higher temperature, often with high humidity. It is not surprising that vasomotor changes in the upper respiratory tract mucosa produce congestion and a hypersecretion. Some are more vulnerable to this than others, particularly the allergic individual.

The patient who gets nasal congestion when the temperature drops, especially in damp weather, is a common experience. He usually calls it "sinus trouble."

The treatment, of course, is again obvious. In my opinion, local medications should be avoided and the situation explained to the patient.

DR. PROETZ: I seem to remember those experiments of Mudd, Grant and Goldman, who found that when the body surface is chilled, the temperature of the pharyngeal surface is reduced correspondingly, due to the ischemia which is induced there and which has to do with changes in the secretion.

I also remember a paper of Marshall Taylor's in which he described experiments with swimmers who stayed in the water too long and got too cold. His findings were that the body temperature stayed low for a considerable time—if I remember, from half to three quarters of an hour—after the swimmer left the cold water.

LOCAL MECHANICAL ABNORMALITIES

The next subdivision comes under local mechanical abnormalities, such as nasal obstructions, spurs and what not: anything that changes the nasal air currents. All I should like to say about this is that the nose is required to moisten the air adequately as it goes down. If part of it is shut off by any sort of mechanical obstruction, the total radiating moistening area is reduced and, therefore, excessive evaporation takes place. Irritation takes place; changes in the viscosity of the secretion; accumulation and a mechanical local piling up of the viscous material, which is probably completely harmless unless it becomes infected. It is a good culture medium. It depends on where those obstructions are, just where the dry spots appear and what the symptoms are. If air hits the pharynx in a localized spot, there will

be crusting. If it hits in the neighborhood of the sphenopalatine ganglion, there may be headache. All in all, wherever local drying occurs, local crusting also occurs.

Would you straighten the septum, Dr. Boies?

DR. BOIES: I would do whatever in my judgment seemed necessary. Every crooked septum does not need to be straightened. There are many with septal irregularities who have no symptoms and are unaware of their septal deformities.

DR. MORRISON: Some of the not-too-common complaints of people with postnasal discharge come from those who have mechanical anomalies in the nose. The air goes through like a shot from a gun and the mucus dries on the pharyngeal wall, so that every third or fourth day they have the crust that you speak of. Some of them, with great glee and great pride, roll it up and bring it in to you and show you this thing that was damp on one side and dry on the other, and sometimes it has some blood in it. Having listened to programs with regard to malignancies, bleeding, etc., I am very sympathetic with them in the matter. They should ask about it, but that is not to be confused with Tornwaldt's ordinary discharges from that area. That is purely a matter of secretion that dries on the posterior pharyngeal wall. I don't know what to do about this sort of thing. Correcting the deviation is not always the answer. In fact, sometimes it increases the crusting rather than eliminating it.

DR. PROETZ: A flutter valve action of a septum that is overoperated upon may increase it. I have long since gotten over the habit of doing as thorough a septum operation as I was taught to do, because a complete septum operation may be bad for the patient. If I make a soft nose out of what was a firm nose, I may be in trouble. If one will find out what part of the septum it is that is at fault and will fix it and let the rest alone, I believe he will have a much more physiologic situation than if the rigid structures are completely removed and the flapping mucosa shuts off one side when the patient inhales.

DR. BOIES: That seems to be in line with the thinking of those who now talk about the physiologic reconstruction of the nasal pyramid. However, it has been my observation that some of the men who have taken a course in this new plastic work and are looking for practice in improving their ability are likely to consider almost every septum a case for surgery. I wonder if we are not getting too many septums operated upon.

DR. PROETZ: My observation is that a very small part of these obstructions and distortions lie in the facial part of the nose. When it comes to reconstruction from the outside, there is really only one factor that amounts to anything, the size and direction of the naris. That has to deviate from the normal pretty far before it begins to make trouble. The air stream blows almost straight up in the nose, and it has to be a pretty crooked nose that will keep it from blowing straight up. If breathing is restricted on one side, that is, if the ala collapses which is not sufficiently stiff (so that the patient does all his blowing on the other side) that is another thing. But so far as measuring the angle of incidence and the angle of deflection of the air stream, I think this is overdone. Most obstructions lie somewhere behind the facade of the face.

DR. MORRISON: The nonmalignant lesions as far as postnasal discharge is

concerned are fundamentally a matter of interfering with the normal physiology of the nose. The one important thing is to be certain that they are nonmalignant, and there are ways and means of going about doing that. I still believe that when you take out polyps, they should be sent to a pathologist for histopathologic examination.

Of the lesions in the nose, of course, there is one that is rather common. It is right in the Kiesselbach area and produces crusting, or perhaps the initial insult to the area produced the crusting. It is consistently and persistently removed. It is subjected to digital trauma, as we put it politely, and there is often some bleeding, so that the secretions that are found in the nasopharynx show some blood. All secretions, if there is any question about their origin, should be examined. The method used to ascertain the nature of the cellular content will be discussed when we talk about malignancy. Fundamentally, as far as postnasal discharge is concerned, it just merely interferes with the normal physiology of the nose, and when you interfere with that you are going to have discharge.

DR. PROETZ: Dr. Boies will continue with the discussion on dusts and fumes.

DUSTS AND FUMES

DR. BOIES: One who is allergic to dust gets a hypersecretion of mucus from the irritating effect of this dust on the mucosa of the nasal space. Every fall or early winter when the heat is turned on, I see patients who complain of an "early winter cold." Most of these are cases of an allergic rhinitis brought on when the heat in their homes has been turned on and dust is forced through the air ducts. Regardless of how clean the furnace has been made or whether new filters have been installed, there has been enough of an accumulation of dust in the ducts to ensure that there will be a definite amount of it as the air is forced through the house. Apparently it does not take very much to cause a reaction in the dust-sensitive person.

Industrial dusts of mines, quarries and factories are known to cause irritation of the mucosa of the upper respiratory tract in some. Normally a certain amount is filtered out in the nose, but an excessive amount stimulates a hypersecretion of mucus, which means that an excessive amount of this accumulates in the nasopharynx. Fumes may act in the same way as dust and, in addition, produce a more irritating and even a drying effect. I have a case of a foundry worker under treatment. He apparently has inhaled through his nose an excessive amount of smoke and fumes and claims to have developed a dry nose from this. He now has pharyngitis and laryngitis sicca. The inspissated secretion on the pharyngeal wall and on the vocal cords is very dark in color. I cannot say that inhaled smoke and fumes did cause it, but the circumstances support the idea that these were important factors.

DR. MORRISON: As far as our subject is concerned, any dust or any foreign substance is going to irritate the nose and there is opportunity for an increased amount of discharge.

BACTERIA

That brings up the next causative factor, the bacterial environment. I don't know a thing about viruses except that the early phases of certain infections are supposedly caused by viruses with an increased amount of secretion, usually of the thin type.

Bacteria are old friends of mine that I find under newer terminology as the years go by. Our old friend Bacillus pyocyaneus is now Pseudomonas aeru-

ginosa instead of being just nice and simple pyocyaneus. However, they do the same thing that they have always done. The normal mechanism of safety as far as bacteria in the nose is concerned is well taken care of by a normal blanket of mucus. In those instances where we have chronic infection, the organisms perhaps play some role, but as far as the postnasal discharge is concerned—Dr. Proetz brought that up—in general it is innocuous. Except under certain abnormal conditions, the amount of bacteria, virulent or otherwise, that you swallow has very little to do with your general health. It is not poison.

If you get this material down into your stomach and there is the normal gastric secretion, the pH is very acid, the organisms do not grow there and they are destroyed rather rapidly. The number of cultures of organisms that you can get from gastric lavage is very few. The tubercle bacillus is an exception. It is a particularly hardy creature, but the organisms that you get in gastric washings don't amount to very much. So bacteria are to be considered, but I don't think they play a great role. In the case of achlorhydria you have an opportunity, perhaps if there is a lesion, for infection as such to take place. But by and large, when you go over in your own minds the number of individuals who have swallowed literally gallons of purulent material over a long period of time, it has gone into their stomachs and it has not been their general condition that has suffered. The pathology has stayed in their bronchiectatic cavities and in their chronic sinuses. I wouldn't recommend it as a pleasant condition to offer anyone, but it is amazing how well they can get along and they don't have any trouble as the result of swallowing a few bacteria or, in certain instances, large numbers of bacteria.

FUNGOUS IRRITATIONS

DR. PROETZ: I should like to add just a word about fungus. There is a world of information in the literature regarding its allergic manifestations. But there is also a good deal of irritation of fungal origin which is not allergic, and I am bringing it up now because it is sometimes rather difficult to get a history of it.

You ask the patient, "Have you a damp cellar or is some fruit decaying in your kitchen? Is there any fungus in your house?" and he is apt to say, "No, my house is clean and dry," but it is not always true that one can see the fungus sticking out from things. In my own basement, which I would say is exceptionally dry, I have a dark room, the dull black wall of which is a fine indicator of fungus invasion. In certain seasons of the year, when the humidity gets up beyond about 50 per cent, fungi can live without any further moisture than that in the air. A very faint gray discoloration takes place on the wall. At such times members of my household begin to discover that their postnasal spaces are uncomfortable and show signs of irritation. So the history of fungus in the house is not always obvious.

ALLERGIES

DR. BOIES: Inhalants that cause an allergic reaction need no comment. In the acute phase of this reaction, the patient is usually more concerned about what he or she is blowing out of the nose than what is going down through the nasopharynx. When chronic hypertrophic or hyperplastic changes have become established in the mucosa of the nasal space, that person is going to experience a certain amount of hypersecretion and some of that is going to accumulate postnasally as long as these chronic changes persist.

There are established relationships in some individuals between certain foods and nasal congestion. In my experience this relationship is relatively uncommon and is overrated and when it does occur the reaction in the nasal mucosa is less severe than that from inhalants, and therefore the hypersecretion of mucus is less marked.

In some forms of physical allergy there is nasal congestion, more often unilateral, and this can be a source of excess mucus in the nasopharynx.

The causal relationship should not be difficult to detect with an adequate history and a little experience.

ATROPHY

DR. PROETZ: Let us say a word about atrophy. There are two types of atrophy that concern us. One is the specific type with ozena. I will not say anything further about that. The other is the senile type or the atrophy that comes with a late stage of hyperplasia, where everything is shrunken, and that produces what we might call a phantom secretion. The patient with a nose that is much too wide open complains of obstruction in the nose and tries to get rid of secretions that are not there.

Some think that the sensitivity of the membrane is lowered and the patient does not feel the air blowing through it; therefore, he thinks he is not getting any air, but such a nose does actually offer more resistance to a current than a normal nose. If you send air through a tube of uniform caliber, it will pass through easily. If at the middle of that tube you make an enlargement, a cavern, you not only have the sensation of obstruction, you do have obstruction because the eddies that are set up in the cavity resist the passage of air and more effort is required to push air through such a system than through a normal one. I believe that explains the complaint of a nose full of secretions in atrophic conditions in which the physician can't find any secretions.

FOREIGN BODIES

DR. BOIES: Foreign bodies in the nose offer no particular problem. Such a possibility is suspected in children with a unilateral discharge. This discharge is usually anterior. At first it is mucoid; in time it becomes purulent. On inspection, one can usually see the foreign body.

In an adult, a foreign body as a cause of discharge is uncommon. I have seen only two cases and these were rhinoliths. A chalky white obstruction was visible in the posterior part of the nasal fossa. The patient had both a purulent anterior discharge and a postnasal one. When broken up and removed the obstructing material looked like white plaster.

MALIGNANCIES

DR. PROETZ: There is one specific matter that I think we should touch upon, which Dr. Morrison is especially qualified to discuss: It is the question of postnasal drainage in the presence of malignancy.

DR. MORRISON: Diagnosis of malignancies of the nose, nasopharynx and accessory nasal sinuses is very important, for the simple reason that there are few early symptoms. By the time a bone is eroded, by the time there is proptosis, by the time there is a lesion in the palate, or by the time the lesion has metastasized to the neck, it is really too late.

I happen, with some good help from Dr. Eugene Hopp and Dr. Rosenwood, to have suggested the use of a smear technic with the Papanicolaou stain for nasal secretions as a means of diagnosis of malignancies of the nasopharynx and the nose and accessory sinuses. I want

to limit that a little. It is an excellent adjunct as a diagnostic measure. I wouldn't depend on it entirely, although where it can be carefully checked and where you have a good cytologist, your results as far as checking with biopsy is concerned will be 100 per cent. There are instances when those who do not know too much about the normal cellular population can go wrong and make a mistake, but there is no reason at all that these procedures should not be done if you have a good cytologist to carry it through. The average pathologist is usually not interested.

Of course, in any nose that has a persistent chronic bloody discharge you should find out what is causing it and where the source is located. In certain of the malignancies, of course, you have an excellent opportunity from the surgical standpoint to do something. The majority of them, fortunately, can be controlled or arrested by rather extensive measures, either through radiation therapy or surgery, but the outlook is not too good, so do be careful with the patient who has chronic, sanguineous postnasal discharge.

METABOLIC AND ENDOCRINE DISTURBANCES

DR. PROETZ: We will discuss very briefly, and I think together, metabolic and endocrine disturbances.

DR. BOIES: I have seen individuals in whom I have suspected that an alteration in their metabolic processes has done something to change the character of the mucous blanket that lines the nasal space and nasopharynx. A good example would be the person who changes from an athletic type of life to a sedentary one. There could well be other factors in producing mucus in the nasopharynx about which he is conscious and might complain, such as his smoking habits, indulgence in alcohol, but it is this type of individual who is particularly prone to tell you that his nose tends to be "stuffy" and his "sinuses drain" into his throat and that he has had quite a time hawking and spitting just after he gets up in the morning.

DR. MORRISON: The endocrine factor takes in a pretty big field. Present-day ACTH and cortisone do a lot of things to the mucous membrane and they do a lot of things to the secretions. If we get to talking about drugs, I will mention one or two things there. However, to get it down to a real, practical everyday standpoint, I should like to draw your attention to the role that the thyroid plays in the chronic, stuffy, congested nose and with the patient who often complains of postnasal discharge. In fact, complaint of postnasal discharge is often the complaint that will bring the patient to you.

I always mention the word hypothyroid with a great deal of reserve and I put on my armor immediately, because the internal medicine men, and particularly those who are interested in the endocrines as such, the endocrinologists, immediately have a textbook picture of the marked hypothyroid, the cretin and all the rest of it. This isn't the individual I am talking about. I am talking about the individual who goes about his daily work apparently normally. He complains of stuffy nose and of postnasal discharge. If he has been around long enough, he has seen an allergist. He has been tested. He has had some shots and lots of other things. He still has his postnasal discharge and his stuffiness. If he has gotten into other hands, he has tried all the drops up and down the line. He has tried all of the sprays and several of the inhalers. He has also by that time had x-rays of his sinuses. Even though they were clear, they have been washed. Both maxillary

sinuses have been washed and nothing has happened.

Having eliminated the ordinary causes of pathology, send this individual for a basal metabolic rate, which nowadays in addition to the orthodox oxygen consumption method can be supplemented with serum cholesterol, and if you want to be really fancy you can have the protein-bound iodine thrown in as a third test. I am not too enthusiastic about recommending radioactive iodine, which is a fourth one that we now have. However, the ordinary basal metabolism test will probably show—oh, let's put it near the borderline—minus 8 per cent, which the family doctor will say means nothing at all. That is accepted as being within the limits of normal. However, that same individual, if he is put on a small amount of thyroid, a half or one grain a day, if there are no contraindications, will come back with some amazing changes. He says, "Do you know I am not tired any more. I am not troubled with any postnasal discharge. I can breathe through my nose."

That is coming to a conclusion rather fast. However, in order to get this point over with certain of my medical colleagues, I used some state money several years ago and took 20 of these people into the hospital, not all at once, and had basal metabolism done on them on Monday, Tuesday, Wednesday, Thursday and Friday, and it was amazing to see what happened with an individual who initially had a minus 8 per cent. You end with minus 20 or minus 30 per cent. Supplemental thyroid therapy is given not on the basis that you are correcting hypothyroidism in the terms of the endocrinologist. It is amazing to those individuals who receive proper treatment. The more experimentally minded ones will decide to stop their thyroid therapy maybe after two or three months, and then they will come back and say, "I would like to go through that again and get the benefits."

I personally do not prescribe the thyroid therapy. I think that is the family doctor's duty. I have a great deal of trouble with some of the internists in getting them to accede to my wishes; first, that the basal rate should be checked; second, that the patient should receive thyroid therapy; third, that the basal rate should be checked at the end of two months after they have been on the therapy to see if it has made any difference, and last, to continue treatment over a sufficient period of time to be of some value.

DR. PROETZ: I may say that I do prescribe thyroid in certain cases because I believe it is the only way in which I can manage the situation. If I could get the cooperation that Dr. Morrison indicates, of course I would much prefer it. I don't mean to say that colleagues resist, but there are some who shrug the whole thing off and you get no cooperation, and I am still there responsible for my patient.

This subject merges more or less imperceptibly into emotional distresses and their reaction, and I will ask Dr. Boies to go on with that.

EMOTIONAL STRESS

DR. BOIES: I would like to recommend to you a short monograph on "The Nose" which deals with an experimental study of reactions within the nose in human subjects during varying life experiences. It was written by Holmes, Goodell, Stewart Wolf and Harold Wolff at Cornell. It is published by Charles C Thomas. They studied the nasal reactions in the presence of stress, physical stimuli, emotional upsets and sexual excitement. We all know that nasal congestion occurs reflexly under many of these situations. Nasal congestion usually produces a hypersecretion.

It has been my observation in the type of person who is emotionally unstable that the patient with very little postnasal discharge will complain out of all proportion to the amount of morbidity present.

PROLONGED MEDICATION

DR. PROETZ: We have saved for the last what I consider one of the most frequent causes of postnasal discharge and perhaps one of the most difficult to explain to the doctor because he is personally responsible for it. That is excessive and prolonged medication of the nose. I will ask Dr. Morrison to say a few words about that.

DR. MORRISON: In order to take the converse side of the story first—and I don't want to be unpleasant about this—in the last issue of the TRANSACTIONS there is an article by Fabricant on excessive and prolonged medication, in which he makes this statement—when you take only part of the statement it can be misinterpreted: "There is little to indicate that the present passion for psychosomatic phraseology will alleviate millions of inflamed and allergic American noses." That is perfectly true.

The other side of it is that the barrels, buckets, gallons, whatever it is, of nose drops that have been prescribed are not going to alleviate the situation either and in certain instances they are going to make it worse.

Often in talking with a patient I tell him this story: In the old days when one rented a rig, they gave you a whip and if you kept flicking the horse with the whip he did one of two things: He either went crazy or he got used to it.

I think the same sort of thing is true of excessive and prolonged medication as far as the nose is concerned.

Fabricant's article also emphasized certain phases that are important. Leland Hunnicutt and several others who have done work along this line say that the pH for medication should be a little on the acid side. The normal pH of adult secretion runs between 5.5 and 6.5, whereas the infant is supposed to have a little wider margin both ways from 5 to 6.7. Medications that are on the alkaline side are bound to be irritating and do not help the general condition at all in that during the acute phase of a cold or an infection the nasal secretions are usually somewhat on the alkaline side. After the infection has established itself and the acute phase is over, the pH then returns to the somewhat acid phase, so that the medication should be on the acid side. If this is not possible, then closer to neutral.

DR. PROETZ: Dr. Morrison, specifically how do you treat a so-called rhinitis medicamentosa?

DR. MORRISON: That is a long story, and I think it has to be done somewhat differently with each individual. But when they have gotten to the point where they have to take nosedrops every two hours, day and night, and wake up at night to do it, you have to lay your cards right on the table and really go to town. The first thing the individual needs is some help as far as the stuffiness is concerned. You can take a perfectly normal nose and ruin it in three weeks time so the person won't breathe comfortably and will have a lot of secretion.

I often use one of the shrinking agents, and those I usually give by mouth first, so that the person has something tangible to go on. It is something that is physiologically correct, and as far as I am concerned, I think I have done something worth while. Then I tell the individual, "It is perfectly all right to use your drops once before bed time." I give him a little something to go on.

You cannot load everybody with barbital so that they will sleep through the night, and it isn't fair to do so. So I give them something to go on.

If you establish a fairly decent rapport with your patient, you can merely say to him, "I would like for you to do this. Every time you have that bottle in your pocket and you start to reach for it, ask yourself, Is this necessary?" The average intelligent person will have something to say about it. He thinks, "I just can't breathe without it."

I say, "I don't know what the word can't means. I only know it means that up to this moment you haven't. Now, go ahead."

You really have to carry them on your shoulders for a bit, and I would say that fully 60 per cent of them will respond satisfactorily to this routine. After the first couple of days they are really quite proud of themselves that they are not putting drops in all the time. When they get to that stage it is simple.

On one or two occasions, I have put patients in the hospital and left enough barbital compounds to be administered routinely so that they would not be too much of a nuisance to themselves and would not be calling their wives and friends and also me and saying that they were dying without the drops. It took five solid days to get one off the medication.

SQUINT OPERATIONS AND BINOCULAR FUNCTION

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AFTER some years of treating squinting children by all the means at one's disposal, it is salutary and possibly interesting to review the results that one has achieved oneself, well aware, as one is, that such reviews have often been made by other people in the past, and of series containing many more cases than I have included in this report. Thus Cashell[2] reviewed 1,119 cases; Douglas,[3] 100 cases; Houlton,[4] 104; Lyle,[5] 172, and Bridgeman,[1] 625.

For the purposes of this review I have taken a series of 40 cases only, 40 consecutive unselected cases from my private practice, of concomitant strabismus which had been subjected to operation. I chose those from private practice because the personal supervision of these patients is clearly much closer than it is of those in a busy hospital outpatient clinic. Further, the orthoptic supervision is individual and much closer; my orthoptist works in my house, and we consult over the cases far more frequently than is possible in hospital. Again, we both have plenty to do, and no treatment is persisted in which does not appear to be likely to lead to fruitful results; we have no body of orthoptic students to teach, who have to be provided with patients (though it is not suggested that patients in hospital are caused to attend unnecessarily for this purpose). It is hoped that it is also permissible to mention that if a parent is paying for the treatment, attendances are likely to be more regular and exercises at home more conscientious than if they are not; the same consideration also puts an automatic check on the excessive prolongation of treatment. An additional advantage in using private records is that all the notes are one's own, made in comfort and leisure, and the meaning and value of any statement can be accurately assessed precisely because it is one's own.

With regard to the number of cases chosen, it might be objected that this is small. Assessment of results on a large number of cases, however, has already been made more than once, as indicated above; further, it is submitted that sufficient indication of a special aspect of a subject such as this may be gained from a study of such a number.

A word as to operative technic: I hope I may not be considered a clumsy thinker and a rough worker when I say that I am no believer in the idea that one can measure millimeters on the sclera and transform them into degrees of arc. One is not working in wood or metal, and the variables are too many, in my view, to permit assessment to such presumed degrees of accuracy. Strabismus operations are like tonometry in that one knows what one is doing with one's own instrument and can understand or predict the result; though here one must pay tribute to the efforts being made to standardize tonometers. Whether this will standardize tonometry, and whether that matters or not, are questions which need not detain us here.

While one naturally employs unusual technic in unusual circumstances, there are operations which one chooses as routine. For an effective lengthening I employ recession, refixing the tendon to

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the sclera with a catgut suture. I would like to mention here that for years I fearlessly and successfully practiced tenotomy, and can honestly say that I can remember but one case of secondary divergence and defective adduction; recession is, however, admittedly more controlled and surgically rational, and anyway one must move with the times! In a full recession I place the suture at the equator, hope for a 15 degree result, and do not expect more. Lesser angles are treated by recession to a lesser extent, but too cautious a move should be avoided. I am not very tolerant of a so-called 3 mm. or 4 mm. recession when I realize that probably 1.5 mm. of tendon may be left on the sclera, and a 1.5 mm. bite of tendon is taken by the suture, leaving little or nothing for recession effect. A little calculation will show that the equator is approximately 8 mm. behind the insertion of the internal rectus, and no difficulty whatever is found in recessing to this position.

Although I am aware that the burying of silk is becoming quite a common practice in general surgery, I changed over to catgut a few years ago because it seemed more rational to bury an absorbable material. I had had no trouble at all from buried silk in squint operations (I had one stitch abscess in a detachment case), and it is annoying to note that I have had three cases of subconjunctival granuloma, presumably infective, since adopting catgut. These granulomas are of no serious import and easily removed, but are a nuisance and produce a bad impression on the patient.

For effective shortening I employ advancement. Resection is popular and has largely replaced advancement in many clinics, but I see no advantage in it and some disadvantages. A suture placed through a muscle belly and subjected to tension along the line of the muscle fibers will in most instances pull along to the point where the tendon commences, and this is a variable point. In a true resection the reattaching sutures are placed through the original insertion, and therefore the effect varies from case to case. On the other hand, the effect gained by an advancement can be accurately controlled by varying the point of reattachment. I have never experienced the occurrence of a raised area in and under the conjunctiva at the point of reattachment which some have described in decrying the operation—perhaps because I use silk sutures—which pass through conjunctiva before transfixing tendon and sclera, and thus, while closing the wound in the conjunctiva at the same time as advancing the tendon, leave the knots exposed on the surface, enabling complete removal some ten days after operation.

The employment of advancement alone tends in many cases to produce a noticeable enophthalmos, even when no more than 15 degrees is arrived at, therefore I employ recession alone; if the angle is more than this I do the combined operation, varying the position of reattachment according to the effect desired. When the advancement is as free as possible—that is, up to 1 mm. from the limbus—a rotation effect of 25 to 30 degrees may be expected. If the angle is larger than this it is unwise to aim at attaining it by operation upon one eye only.

For divergence I have no hesitation in doing a full tenotomy of the external rectus tendon, and have never experienced defective abduction as a result.

I have listened to descriptions of countless variations and modifications of the operations for effective shortening and effective lengthening of the recti muscles, varying from the ingenious to the bizarre, and I have watched demonstrations of them at home and in foreign countries, but have never felt the necessity for adopting them, nor

felt sufficiently dissatisfied with the effect which can be obtained by the practice of the operations I have just described.

As regards the horizontal deviations, I am sure that the ultimate effect of surgery depends upon the degree of binocular vision, though I admit at once the desirability of always aiming at the highest degree of accuracy. There is no guarantee whatever that an amblyopic or congenitally defective eye will remain indefinitely in the position in which it is placed by operation; there is little doubt that the surgical straightening of an eye which combines with its fellow to achieve full stereoscopic vision will be permanently successful; and intermediate physiologic states carry intermediate prognoses.

My experience in the surgery of the oblique muscles is probably no more than average, and the only condition involving an attack upon an oblique which commonly presents itself to me is that of the overelevated eye in adduction. For this I employ the transcutaneous approach. I practiced the transconjunctival approach for a while, both through the lower fornix and also on the temporal side, picking up the muscle by the external rectus, which I consider the easier approach of the two. The approach through the skin, however, is extremely simple and leaves no visible scar if the incision is placed in the natural skin fold found in that situation. When the belly of the muscle is caught astride the strabismus hook, I place a clamp on it and divide the muscle on either side, thus removing a portion.

It is now appropriate to arrange, describe and analyze the cases in the series under review. At the onset five were rejected as providing no information relevant to the subject studied. Case 7 was a woman aged 34 with a right upshooting eye, relieved of diplopia by inferior oblique myectomy, whose binocular state was naturally unchanged. Case no. 8 was first seen at the age of 10½, having squinted since the age of 2½; the right eye had been proved intractably amblyopic and resisted all attempts to raise the vision above counting fingers. Case no. 33, a doctor's son of 3½, was presented for operation with 20 degree convergence; this was successfully done, when the child at once left the country with its parents for the father to commence a new practice and has not been heard of since. Case no. 38 had squinted since the age of 5 and was first seen at age 37 with right convergence of 30 degrees; there was not even simultaneous macular perception, though the squinting eye was not to any extent amblyopic. Case no. 39, aged 18, showed a perfect example of congenital retinal fold with a virtually blind eye. The eye was straightened and, as I heard only lately, has not remained straight.

The preoperative and postoperative treatment accorded to the rest varied, of course, with the nature of the case. After the first visit, refraction was carried out. Although I flatter myself that I can get an accurate refractive result out of any cooperative child without the use of atropine, in all these cases atropine was used on account of the extreme importance of discovering the whole of the hypermetropia. Orthoptic investigation was undertaken in all cases old enough to undergo it; careful records were kept and occlusion, home exercises or supervised regular exercises, or a combination of both, instituted as indicated. Operation was undertaken when it was agreed that further delay was unnecessary or undesirable. In appropriate cases orthoptic treatment was recommended immediately afterwards and continued as long as seemed necessary. Those who had full binocular vision were discharged and asked to reattend for periodic supervision; no patient who seemed likely to achieve high-

er levels of binocular function by further treatment was refused treatment, and no patient was persuaded to continue attendance if we were satisfied that such a consummation was impossible. In individual cases the intended program was inevitably interrupted or modified by matters outside one's control, such as illness, parental carelessness, geographic considerations, or domestic crises. Every effort, however, was made to carry out the program of treatment which each case was considered to require.

It is usual in presenting a series such as this to confront one's audience either with a collection of statistical tables, as formidable and forbidding as they are informative, or alternatively with a succession of charts, black and white, dotted and crossed, hatched and cross-hatched or gaudily colored according to the financial state of the organization responsible for their reproduction. I propose to spare you the ordeal of either of these alternatives; instead, to give a descriptive verbal analysis of the series, as short as may be consistent with adequacy, and then to outline the conclusions arrived at from a careful study of the data provided. This method, intended to be more acceptable and digestible than the customary one, suffers from one disadvantage only, in that the conclusions cannot be checked back against the tables or charts, but the matter has to be left to the honesty of the narrator. I only hope that that will not, in your opinion, invalidate the method; and anyway, tables and charts *can* be faked!

The data collected and collated, which was charted out on one large chart for purposes of review, was as follows:

Age at onset
Age when first seen
Nature of strabismus
State of binocular vision
Interval between onset of squint and provision of glasses (if necessary)
Refractive error
Presence or not of amblyopia
Amount of preoperative treatment, and result
Operation and age at operation
Amount of postoperative treatment, and result
State of binocular vision when last examined, and time of that examination after operation

In the 35 cases remaining for review, a history of squint since birth was forthcoming in 9. They were first seen at ages varying from 4 months to 15 years: one had gone six years without glasses, one had gone four years, one three years, and the rest two years or less. Preoperative treatment was considered advisable in 6 of these cases, and occlusion only in the other 3. Refraction in 6 of them was of the expected hypermetropic order, low in 5 and high in 1 (+9); 2 were emmetropic and 1 was a low myope, who none the less showed convergent concomitant squint in common with all the other cases except one other, an emmetrope, who showed occasional divergence only. Five were too young for any assessment of binocular state when first seen; one had simultaneous macular perception, two had not normal retinal correspondence, and one had abnormal correspondence. In only one case did we succeed in establishing some degree of binocular vision—by the time case 23 came to operation at 5 years, fusion was present. The appropriate operations were done at ages varying from 4 to 15 years (all those seen when very young were operated on between ages of 4 and 7). Postoperative treatment was not given to a girl aged 15 when first seen, nor to one case showing nystagmus; all the others received some, and in some cases it was intense and prolonged. As regards final binocular function, case 23 retained her fusion and achieved some stereopsis; in no

others was there any binocular vision obtained.

Taking the remainder as a whole, it was impossible to estimate binocular function when first seen in the case of 7 of them, for reasons of age. Of the rest of this category, 11 had binocular vision (fusion, up to full stereopsis); 6 showed some degree of amblyopia; while the condition of the rest varied from doubtful simultaneous perception to abnormal retinal correspondence. By the time operation was undertaken, only 3 of the nonbinocular cases showed any improvement; one had fusion with doubtful stereopsis (later to relapse to a condition of "no fusion") and 2 had fair stereoscopic vision.

Operation ages in this group varied from 3 to 11, with one exception—that of a girl who was 18 when first seen, showing high esophoria which later broke down to an esotropia, upon which I operated at the age of 36. The 14 with preoperative binocular vision all held it, with two exceptions; one already mentioned, who relapsed to no fusion, and another who relapsed to abnormal retinal correspondence. One other, recorded preoperatively as "fusion with fair S.V." has the final entry "momentary fusion with suppression." Thus there were but 3 cases in whom preoperative treatment appeared to produce binocular vision not previously to be elicited, and only one of these held it fully.

In 4 cases the final record of the binocular state shows fusion to be present when it had not been recorded before. Three had no record on account of extreme youth, and had no preoperative orthoptic treatment for the same reason; postoperative treatment was given in each case. The other was first recorded at the age of 3 as "No N.R.C." and had preoperative treatment to produce "?N.R.C.," and intensive postoperative treatment to produce "fusion, but no S.V." No improvement in the binocular state was obtained in the rest of the series.

Before coming to conclusions, the data may be broken down a little further in one or two interesting directions, as regards amblyopia, alternation and suppression. Amblyopia was present in 12 cases; there was good response to occlusion and recovery of vision in 8 of these, partial recovery in 2, and none in the remaining 2, which is noteworthy in that one of them was aged 5 and the other 6½. Alternation was recorded on first examination in 6 cases; only one of these figured in the final list of binocular cases, and that only under the heading "slow stereoscopic vision." Suppression was a feature in 4 cases (culled of course from the nonamblyopic categories); 2 appeared in the final binocular category, one being the adult case of phoria breaking down into tropia and possessing stereoscopic vision all the time. The other was aged 10 at operation, and was suspected of alternating suppression before operation in spite of a left concomitant convergence of 20 degrees.

The fair conclusions to be drawn from this study appear to be as follows:

1. With the rarest exceptions, a binocular result is never obtained in the case of a child whose deviation dates from birth.

2. It is very unusual for a patient to finish up, after orthoptic treatment and operation, with a better level of binocular vision than that with which he started. If some degree of binocular vision is initially present, this may be improved and consolidated; hold can be strengthened and amplitude increased.

3. In the present state of our knowledge and with the treatment at our disposal, well-established abnormal retinal correspondence is incurable.

4. There are other occult reasons for amblyopia than mere disuse; a proportion of patients fail to respond to occlusion, even when under the usually quoted age of 8 years.

5. Alternation is merely an incidental hazard and does not materially affect the binocular prognosis.

6. Suppression (without amblyopia) is not to be considered a hopeless bar to the achievement of binocular single vision.

7. There appears to be little point in postponing operation in any case if circumstances and the psychologic state are propitious. If binocular single vision is likely, the sooner the better; if not, delay is pointless and cosmetic operation desirable.

8. The degree of permanency of result of an accurately executed and successful strabismus operation is dependent upon the binocular state of the patient.

9. Considered from the aspect of eliminating an angle between the visual axes, orthoptic treatment is useless. It can in most cases only exercise, exploit and facilitate the initial binocular state; it cannot improve it. (The immense value of orthoptics in diagnosis, and in the treatment of phorias is not in question.)

An important point in connection with these conclusions, drawn, as I have said, from a series which might be objected to on the grounds of paucity of numbers, is that they correspond exactly with the conclusions I had already arrived at from my whole experience. Further, and much more important, they also appear to correspond with the impressions of those who have analyzed far larger series of cases.

It is a pleasure to record my thanks to my orthoptist, Miss Barbara Stephenson, for her assiduous work and helpful cooperation.

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DISCUSSION

FRANCIS HEED ADLER, M.D., Philadelphia, Pa.: Mr. Law has very beautifully and, may I say, adroitly outlined for us the operative procedures which he advocates, and then has reported on the final binocular function achieved in a series of 35 consecutive cases.

Every hen is fondest of the chickens hatched from her own eggs, and I assume that one can apply the principle involved in that biological fact to ocular surgery.

It isn't so much the type of operative procedure which counts as the way it is carried out, and every author will naturally advocate those procedures with which he has had the most experience and in which he is the most facile.

Most of us in this audience, including myself, do resections rather than advancements. I feel that if the cut end of the resected muscle is secured by two whip-stitch sutures, which are then placed in the original insertion in such a manner that the muscle is spread out so that the belly of the muscle is flat, there is very little danger of slipping and the muscle retains its physiologic functional plane.

An advancement of the muscle to within one millimeter of the limbus to me would seem to be fraught with the danger of producing a cosmetic blemish. But here again the fact that Mr. Law's results do not have that complication is simply proof of my original

statement that it is the way the operation is done rather than the procedure itself.

I am in accord with everything he said regarding recessions except one thing. In spite of his avowed intolerance of those who do small recessions, I never recess a medial rectus muscle in a child more than 4 millimeters. I prefer to divide the recession between the medial recti of both eyes in order to achieve the desired result. This is the best insurance we have to protect us against loss of convergence.

I agree entirely with all the conclusions that he has drawn regarding the disappointing results in any series of cases as far as their binocular function is concerned, if we look at them honestly, either with or without orthoptic treatment. But I think that it would be wise to amplify these conclusions somewhat in order to avoid misunderstanding and perhaps argument.

Strabismus is not a single disease entity but the result of a number of quite unrelated pathologic processes. We recognize, for example, three types of concomitant strabismus. Type 1, that caused by impairment of vision in one eye from some pathologic process: I do not refer to amblyopia. Type 2, the accommodative type of strabismus. Type 3, a group of cases which, because the etiology is at present unknown, most of us refer to as strabismus of undetermined origin. These three types differ entirely in their characteristics one from the other, and when they are pure can easily be recognized. Unfortunately, the third group is sometimes difficult to recognize because in the child with a high refractive error, there is an accommodative element present. But in general these three types are easily recognizable, and from the point of view of the prognosis of their final binocular function, differ enormously. The prognosis for the children of type 1 is obviously hopeless. The prognosis for those of type 2, the accommodative type, is excellent. In my experience the prognosis for those of type 3 is bad but not hopeless. The 9 cases which Mr. Law singled out of his 35 cases I believe belong to type 3. They were squints that started at birth, which is one of the characteristics of this disease, and visual acuity was approximately equal in both eyes. One of the cases did have a high refractive error, and so it would be a combination of these two. That is, 9 cases out of 35, or 25 per cent of his cases, had a bad prognosis right at the start, with or without orthoptics.

Of the remaining cases, it is a little difficult to tell whether they all were cases of pure accommodative esotropia or not. But assuming that they were, their prognosis was good and in the best, most favorable group.

In my experience orthoptics is of no value whatsoever in the cases of type 3. All that we can accomplish in some cases, I have found, is to provide the child with a form of space perception or binocular vision on the instrument regardless of the type of stereoscope. But when you ask the majority of these children that I have seen to bar-read, they cannot do so and, although either eye may be straight when they are fixating a muscle light, if they are given small test objects to discriminate, one notices that they are not using binocular fixation.

Now in the other group, that is, in the accommodative group. I believe orthoptics is helpful in two things. First, it can be an aid in breaking up of amblyopia and, second, and I believe this is equally important, it can be an aid in the breaking up of the habit of suppression after the squint has been corrected by whatever means have been found necessary. In that respect orthoptics is of value and is helpful therapeutically.

Mr. Law's paper is a valuable and, it seems to me, a very timely one. It does not refute the value of orthoptics, but it does seriously challenge many of the statements which we find in the literature, which apparently Mr. Law feels—and I agree with him—are entirely too optimistic.

A STUDY OF PRIMARY AND AUXILIARY MEDIAL OCULAR ROTATION

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IN ORDER to present my work, I would like to state briefly and illustrate the accepted fundamental facts that are pertinent.

As the eye muscles run from their origin to their insertion they lie in contact with the eyeball for a variable distance near the insertion. This area of muscle applied to the eyeball is called the "arc of contact."

Now as the muscle DAB contracts the eye will rotate around C. The arc of contact, BA, will unwrap and B will approach A. When B and A become one, the arc of contact will be exhausted and ocular rotation due to unwrapping of the arc of contact will be concluded (fig. 1B).

The above facts are stated in most modern texts. It is further assumed

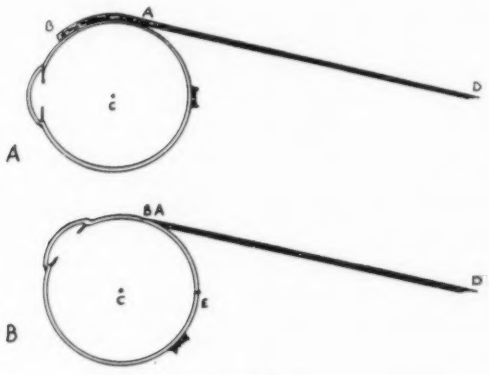

FIGURE 1.

Referring to figure 1A, BA is the arc of contact. The pull of muscle DAB will make its action felt at A. Therefore, A is considered the physiological insertion. Point C is the center of rotation of the eye. It is seen then that the eye will rotate in a constant muscle plane determined by the origin and insertion of the muscle and the center of rotation.

that this unwrapping of the arc of contact is the method by which the eye makes all its movements. However, one can find no record of measurement of these arcs of contact nor of analysis to see if they account for, or permit, the known ocular movements.

Accordingly, the arcs of contact of the medial and lateral recti on twelve human anatomic specimens were measured (table 1). These were preserved specimens with the eyeballs inflated to normal contour. The roofs of the orbits

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TABLE I

ARC OF CONTACT MEASUREMENTS

SPECIMEN	MEDIAL	LATERAL
1	7	12
2	6	13
3	7	11
4	7	11
5	8	13
6	7	12
7	7	13
8	8	12
9	6	13
10	7	12
11	6	12
12	9	11
AVERAGE	7	12

were removed so that the horizontal recti and their attachments were intact.

The average length of the arc of contact of the lateral rectus was 12 mm. The average length of the medial was 7 mm.

It now remained to calculate the amount of ocular rotation any given arc of contact would permit. We could then compare the known ocular movements with what the arc of contact of the muscle involved permitted.

The calculation is simply done as follows: For the sake of round numbers the circumference of the eyeball can be considered as 72 mm. Now, dividing 360 (the number of degrees in a circle) by 72 gives a value of five. This means that each millimeter in the circumference of an eyeball equals 5 degrees.

Knowing that each millimeter of movement of the ocular circumference equals 5 degrees, we can easily determine how many degrees of motion an arc of contact will permit if we know its length.

The arc of contact of the average lateral rectus muscle was 12 mm. Since each millimeter equals 5 degrees, then 12 multiplied by 5 gives 60 degrees as the rotation permitted. The average medial rectus arc of contact was 7 mm. Then, 7 multiplied by 5 gives 35 degrees as the number of degrees of medial rotation permitted.

The average lateral rotation is given as 47 degrees. The lateral arc of contact then is more than adequate to provide for all lateral rotation.

The average measured medial rotation[4] is given as 50 degrees. Since the medial arc of contact found in our work will only permit 35 degrees of rotation, it is obvious that some other mechanism must be demonstrated to account for the last 15 degrees of internal rotation if our findings are correct.

At this time a search was made to determine if others had uncovered this problem. Maddox[3] made his observations from the known anatomic measurements of the eye and orbit, not from personal measurements of the arcs of contact. He arrived at 36 degrees as the medial rotation permitted by the arc of contact of the medial rectus muscle. He felt that the unwrapping of the arc of contact mechanism was the only method of rotation. He then had to account for at least 14 additional degrees of rotation. He did this by stating that additional arc of contact was obtained by the attachment of the medial rectus to the capsule of Tenon.

The only other reference found was an identical piece of work done by A. W. Volkmann[5] in 1869. He measured the arcs of contact in twelve specimens, and found that of the internal rectus to be 6.33 mm. He calculated the rotation permitted by the internal rectus arc of contact to be 29 degrees. He also sought an explanation for the additional rotation normally found and stated it was accomplished because of the elasticity of the tissues.

In the light of our present knowledge I think we can discard the explanations of both Maddox and Volkmann.

We know that the medial rectus attaches to Tenon's capsule only at its insertion into the eyeball. There are no additional attachments to make more arc of contact as Maddox suggested.

Volkmann's statement that elasticity of the tissue will give additional rotation has no experimental basis.

Some other mechanism of rotation must be present, and two possibilities were considered.

The First Possibility

It can be seen from figure 1B that even when B has approached A and the arc of contact is exhausted, the distance AD is still not the shortest distance between the eyeball and the insertion D. The shortest distance is DE. It is conceivable that the muscle could contract further and pull the eye around another 15 degrees.

This explanation is not favored for two reasons. When the muscle has contracted to length AD, the greatest part of its contracting strength will have been used. It will also be pulling against a stretched and resistant lateral rectus.[1] Therefore, it will be mechanically disadvantageous and not make the smooth powerful rotation that is normally present.

The second reason why this method of rotation is not considered feasible can be illustrated by again referring to figure 1B. We can see that the pull of muscle DAB will have two components. One will be rotary from A to E, but the major force would be that of retraction of the eyeball. Since retraction of the eyeball does not occur at the extremes of medial rotation, this type of rotation is not the accessory mechanism.

The Second Possibility

It is elementary that when the eyeball is medially rotated, the pull of the superior and inferior rectus is no longer simply that of elevation or depression. The force of each muscle has three components; torsion, elevation (or depression), and medial rotation. Krewson[2] in 1950, using the anatomic findings of Volkmann, mathematically determined the percentage of the muscle's total force that would go into its primary and secondary functions at all degrees of internal rotation up to 50 degrees. He put in mathematical form the well-known facts that when the eyeball is rotated inward, the vertical recti expend less of their power on vertical motion and more on torsion and internal rotation. At 35 degrees of internal rotation the force of the superior rectus was divided so that 25 per cent was causing elevation, 45 per cent was causing intorsion, and 30 per cent internal rotation. At 35 degrees of internal rotation the force of the inferior rectus was divided so that 25 per cent was devoted to depression, 42 per cent to extorsion and 33 per cent to internal rotation. If we assume that the superior and inferior rectus would work together to aid internal rotation, the following would occur. The 45 per cent of intorsion of the superior rectus would be neutralized by the 42 per cent of extorsion of the inferior rectus. The elevation and depression forces would also cancel each other. The internal rotating forces would be added together (30 per cent and 33 per cent) giving 63 per cent. This 63 per cent of internal rotating force when the eyeball is at 35 degrees increases to 73 per cent when the eye is rotated inward 50 degrees.

Figure 2 illustrates simply this mechanism. Point C is the center of rotation. The pull of muscle DAB is resolved into its elevating and adducting forces by the triangle BAC. In figure 2A, with the eye straight ahead, BC, the elevating force, is great and AC, the medial rotating force, is small. In figure 2B, where the eye is turned in, BA, the ele-

vating force, is slight and the medial rotating force, AC, is great.

Here, then, is a muscle action that increases in power as it comes toward full medial rotation. It is well suited to supply the powerful rotation needed beyond 35 degrees that the medial rectus cannot supply.

The next problem was to determine by further work whether our conclusions, which assigned the limits of medial rotation to the superior and inferior rectus muscles, were correct or not.

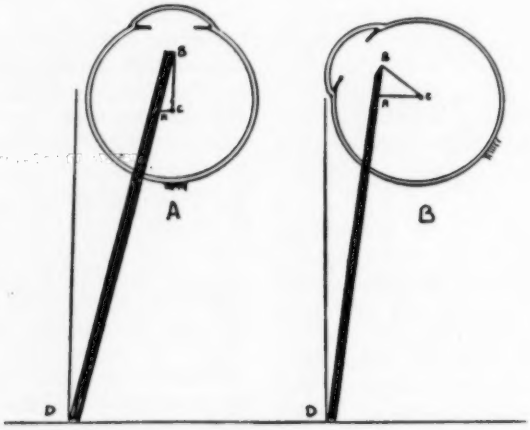

FIGURE 2.

We reasoned that if in an eye with normal ocular excursions the superior and inferior recti were sectioned, in addition to interrupting elevation and depression, medial rotation would not go beyond 35 degrees, if the superior and inferior rectus muscles provided rotation beyond 35 degrees.

The freedom to do such work on eyes with normal motion is, of course, limited. Fortunately, the facilities of the Cook County Hospital and Hines Veterans Hospital were available. It was decided to do this work on eyes which satisfied the following criteria: (1) The eyes would be those that were to be enucleated, (2) the eyes would be of normal size, (3) the excursions in all directions must be normal, (4) the patient must not be endangered by the delay in removing the eye due to this work.

Measurements were made on a standard Ferree-Rand perimeter. The eye to be measured was centered. The patient was encouraged to make maximum ocular rotation in the cardinal directions. The measurement was made by a light on the arm of the perimeter centering the corneal reflex. Each measurement was made three times. Error was within 5 degrees.

I was able in the course of a year to find 6 suitable cases. I will briefly remark on each case since we evolved our procedure as we went along. In addition, the facts obtained from the different cases are interesting.

Case 1

Under local anesthesia the superior and inferior recti were sectioned. The intermuscular membrane and check ligaments were severed so that both muscles retracted easily behind

the eyeball. On the operating table, immediately after the vertical recti were sectioned, the nasal rotation was reduced in excursion. It was marked enough to be clearly noted by all attending.

The surgery was done on a Friday, and it was planned to make formal measurements the following Monday. On arriving at the hospital Monday, the resident informed me that during rounds that morning he had checked the nasal rotation and it was not limited. We proceeded to measure this patient and found the nasal rotation normal. In addition, however, the superior and inferior rotation had also returned. It was evident, then, that in three days the superior and inferior rectus muscles could reattach themselves.

Case 2

Because of the rapid reattachment in Case 1, we decided to do a large myectomy on the vertical recti in this case. Accordingly, the anterior 15 mm. of the superior and inferior recti was removed. The immediate result was a retrobulbar hemorrhage and a proptosed eye. It was not until the fourteenth postoperative day that we could consider the hemorrhage as not a cause of interference with motion. Table II shows the measurements. We note that not until the twenty-eighth postoperative day did the medial rectus recover its own power (38 degrees). On the thirty-seventh postoperative day, when the superior recti began to have an appreciable function, the medial rotation acquired some auxiliary aid. We note that the superior rectus was slow in recovering function.

TABLE II
CASE 2

	SUPERIOR	INFERIOR	NASAL
Pre. Op.	53	60	50
PO 2	0	0	25
PO 5	10	20	25
PO 14	10	35	25
PO 23	10	40	30
PO 28	10	46	38
PO 37	20	45	40

Case 3

In this case we did myectomies as in Case 2. A retrobulbar hemorrhage again resulted, although not as severe as in Case 2. The measurements are given in table III. We can see that full rotation of the medial rectus (35 degrees) was recovered rapidly (on the ninth postoperative day). Auxiliary rotation (above 35 degrees) did not appear until the forty-second postoperative day, when the superior rectus began to have a good range of motion. Again, we see the superior rectus was slow in recovering.

TABLE III
CASE 3

	SUPERIOR	INFERIOR	NASAL
Pre. Op.	48	55	55
PO 9	22	32	35
PO 16	22	39	35
PO 30	24	46	35
PO 42	28	50	40
PO 57	30	48	40

Case 4

Because of the occurrence of retrobulbar hemorrhage with myectomies, we decided to do free tenotomies and measure rotation daily, since reattachment would be much more rapid. We find full medial motion (33 degrees) on the first postoperative day (table IV). Auxiliary rotation developed on the second postoperative day and improved on the third postoperative day in spite of limited superior rectus action. Unfortunately, we could follow this patient no further because he demanded the enucleation which was to follow.

TABLE IV
CASE 4

	SUPERIOR	INFERIOR	NASAL
Pre. Op.	50	60	55
PO 1	15	40	33
PO 2	15	50	40
PO 3	15	50	45
PO 4	15	50	45

Case 5

Since it was obvious in the previous cases that the superior rectus was slower in attaching and recovering motion than the inferior, we decided to do a tenotomy of the superior rectus and resect 4 mm. of the inferior rectus. We hoped that both muscles would recover at approximately the same rate and demonstrate more clearly whether the auxiliary nasal rotation develops as the vertical recti regain their action.

Table V contains the measurements. We see that the inferior rectus this time recovers more slowly than the superior. On the fifth postoperative day the medial rectus had recovered full function (35 degrees). On the seventeenth postoperative day, when the inferior rectus had recovered fairly well, the auxiliary rotation was evident.

TABLE V

CASE 5

	SUPERIOR	INFERIOR	NASAL
Pre. Op.	50	42	44
PO 1	25	20	19
PO 2	29	21	25
PO 3	34	22	28
PO 5	37	22	35
PO 6	35	25	35
PO 10	36	25	36
PO 17	40	29	42
PO 36	40	31	42

Case 6

This case was done by Dr. Marvin Henry, who was then chief resident at the Hines Veterans Hospital. He was asked to measure the ocular rotations of the patient preoperatively and record them. He was then instructed to do a free tenotomy of the superior rectus and a 4 mm. myectomy of the inferior rectus and to record the ocular motions daily. He was not given any details of the problem so that unconscious influence could be eliminated. Table VI shows the data. Nasal rotation was good on the seventh postoperative day. The auxiliary motion (above 35 degrees) was very definite on the ninth postoperative day when the superior and inferior had recovered most of their action.

TABLE VI

CASE 6

	SUPERIOR	INFERIOR	NASAL
Pre. Op.	50	50	50
PO 5	30	20	27
PO 7	35	30	30
PO 9	42	35	50
PO 12	50	45	50

DISCUSSION AND CONCLUSIONS

Considering the work of Volkmann[5] and Maddox[3] along with the anatomic findings presented in this paper, we can say with a fair amount of certainty that the medial rectus arc of contact will permit by its unwrapping mechanism approximately 35 degrees of internal rotation. Internal rotation beyond 35 degrees must be provided by another mechanism.

Our work indicates that this mechanism is provided by the joint action of the superior and inferior recti.

Incidental to the main findings we find that large myectomies of the superior and inferior recti cause retrobulbar hemorrhages. We also find that the superior rectus is slower in reattaching and gaining function than the inferior. The most interesting fact is that when the superior and inferior recti are separated from the globe, they will almost invariably reattach in spite of even large myectomies.

All of us who do squint surgery realize that we cannot begin to do surgical correction with anything like mathematical precision. We will all agree that all the facts involved are not known. In doing surgery on the horizontal recti, for example, we sometimes find vertical tropias changing in unaccountable ways. The same thing occurs in working on the verticals.

It is hoped that this work will be of some aid in explaining some of these unlooked-for results, because we may have established a definite relationship between medial rotation and vertical acting muscles.

For example, strengthening a weak vertical rectus could possibly cause medial rotation to be improved or exotropia diminished. The converse would also appear to be true. Spastic superior and inferior recti in the same eye could cause esotropia to persist in spite of horizontal remedial surgery. Such a squint would not be concomitant, in spite of no horizontal muscle paralysis. Changes in the medials could either accent or diminish the auxiliary action of the verticals. If the auxiliary action of the verticals is increased and the two muscles are not of equal strength, then new vertical errors will appear.

Since we now can be aware of this auxiliary internal rotation and the range

of degrees where it is effective, perhaps the number of complex tropias whose reaction to surgery we cannot predict may decrease in number.

The whole field of auxiliary muscle action has not been experimentally investigated "in vivo" to any degree. Most conclusions have been based on mechanical interpretations of anatomic dissections and mathematical calculations.

Further investigation is certainly called for.

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DISCUSSION

WILLIAM E. KREWSON, III, M.D., Philadelphia, Pa.: Dr. Gordon has shown great ingenuity in his clinical investigation of ocular rotations, and I am confident that his results will be quoted frequently in future literature.

The medial rectus, Dr. Gordon has demonstrated, because of its shorter arc of contact, is a poorer adductor than the lateral rectus is an abductor. He has verified the suspicion that the medial rectus cannot account for the total amount of adduction observed clinically. The superior rectus and inferior rectus, although primarily vertically acting muscles, are also adductors, and their equal and simultaneous contractions supplement the limited action of the medial rectus, and account for the total amount of adduction normally observed.

Dr. Gordon has also shown that when the arc of contact of a muscle is exhausted, the limit of ocular rotation due to the particular muscle involved is reached, and continued contraction of the muscle will produce retraction of the globe. Clinically, then, when the arc of contact is reduced by adhesions or other anatomic peculiarities, limited rotation with retraction of the globe is observed. This is undoubtedly the mechanical explanation of what is called the retraction syndrome.

Another lesson which Dr. Gordon's investigation teaches is that tenotomy of a muscle is to be discouraged, since the results are quite unpredictable, in fact, the operation may produce no significant change at all. It would appear far better to do a recession, and thus attach the muscle to the globe at a desired position, than to let the muscle retract without control.

The fact that the superior rectus, following tenotomy, recovered more slowly than did the inferior rectus is quite interesting. I suspect that the fascial attachments between the superior rectus and the levator, especially along their mesial borders, may be responsible for this retarded effect; no such fascial pull is exerted on the inferior rectus.

This presentation can have a far-reaching effect when applied to ocular muscle surgery. Since the simultaneous action of both vertically acting recti can produce an inward deviation, it is evident that in the presence of an already existing convergent squint, the action of the vertical recti can augment this deviation. The greater the squint, the more the vertical recti are in a position to act as internal rotators. Likewise, the action of the superior or inferior rectus singly in a convergent deviation, besides producing a vertical and a torsional effect, will augment the inward deviation. The converse is true also, in that when an outward deviation of the globe exists, overaction of either or both vertically acting muscles would tend to diminish the divergent squint.

Since a vertical element often exists in the presence of a horizontal deviation, it must be remembered that surgery of either of these muscles will have a beneficial or disadvantageous effect on the lateral deviation, as the case may be. When these complicating factors are not taken into account, disappointing results and surgical failures may be encountered unexpectedly. Dr. Gordon's study reveals very dramatically the reason for this fact.

KENNETH C. SWAN, M.D., Portland, Ore.: In 1897, Duane in his Classification of Motor Anomalies pointed out that in extreme adduction the superior and inferior rectus muscles strongly re-enforce the medial rectus. He recognized that in extreme adduction, the adductive force of the medial rectus was appreciably reduced.

Now Dr. Gordon goes a step further. He postulates that the sole adductive force in extreme adduction is provided by the superior and inferior rectus muscles. He has provided two types of evidence to support his contention. First, he has made postmortem measurements of the arc of contact of the medial rectus with the globe. From these measurements he has calculated the theoretical limits of rotational effectiveness of the muscle; however, his conclusion is based on an assumption that is not accepted universally, that is, that the rotational effectiveness of a muscle is eliminated when its contact with the globe is "unwrapped."

One basis of contention is the mode of action of the superior and inferior rectus muscles when they act together to re-enforce adduction. There is evidence that this joint action of the two together is effected without "unwrapping." This disagreement on theory in no way affects either the validity or the importance of Dr. Gordon's anatomic measurements.

In the second series of experiments he has tenotomized, and in some instances even resected, parts of the superior and inferior rectus muscles in eyes that were to be enucleated. He has obtained important data. To my knowledge, it is the first experimental evidence that the medial rectus alone cannot carry the globe into extreme adduction. Without further evidence I do not believe that we can conclude further.

I have not repeated the experiments, but on a few occasions while operating under local anesthesia I have studied the horizontal effects of the vertically acting muscles when both the medial and lateral rectus muscles were tenotomized prior to recession and resection. My few observations supported the conclusions of Duane. Duane concluded from his studies of paralytic cases that the superior and inferior rectus muscles, although they had a strong re-enforcing action, had adductive force "limited to a few degrees."

I realize that my few observations are too meager for conclusions. Also they were made with the eye in the primary position where the adductive force of the vertical rectus muscles is minimal. I present them not in contention with Dr. Gordon but to support his statement that a great deal more work needs to be done in this field. I hope that he will continue and that he will expand the scope of his experiments. For example, it would be highly desirable to have anatomic measurements of the arc of contact not only of the medial rectus but of the other muscles with globes of different sizes.

DR. GORDON: I am very much indebted to Dr. Krewson for taking the trouble to write out his discussion and send it here for reading in spite of difficulties which prevented him from coming here himself. His favorable comment on this paper is very gratifying to me since Dr. Krewson's work on ocular rotation is considered one of the milestones. I think his deductions on the retraction syndrome are ingenious and of much merit.

I also wish to thank Dr. Swan. His keen remarks are well taken. I agree that a small series of cases are too vulnerable to permit extensive conclusions. However, I do think that this paper has brought to light and indicated solutions for some of the problems involved in this type of research. I further believe that there are true indications that the superior and inferior rectus muscles are mainly responsible for nasal rotation beyond 35 degrees.

CONTACT LENSES — AN EVALUATING STUDY

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JAY M. ENOCH, M.D.
FORT KNOX, KY.

BY INVITATION

FOLLOWING the work started by Dr. George Smelser[6-8] on contact lenses, an intensive study was conducted at the Army Medical Research Laboratory at Fort Knox, Kentucky, in an effort to obtain a clinical evaluation of these lenses. The performance of four types of contact lenses was compared one against another, as well as against spectacles. Tests were conducted both in the laboratory and in the field and even included climatic variations to the extremes of $-40°$ and $+120°$ Fahrenheit and at simulated altitudes to 20,000 feet. An attempt was made to simulate most types of endeavor. Instrumentation included not only standard ocular testing apparatus but also equipment developed especially for this project. The halometer (fig. 1) and photometer (fig. 2) developed by Smelser[6-8] and Finkelstein[3] were employed. Preliminary testing of visual acuity revealed that erroneous results were being obtained when working in the semidarkened test room with standard visual testing equipment. As a result, apparatus was developed (fig. 3)

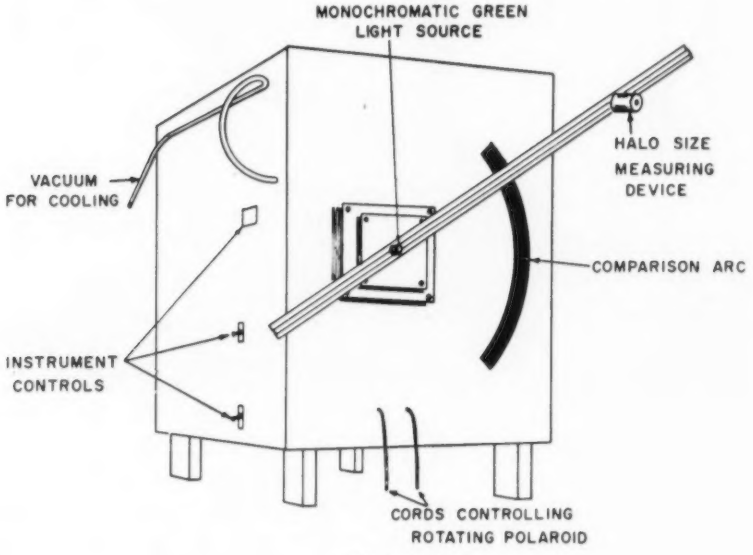

FIG. 1—Halometer.

Presented at the Fifty-Eighth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 11-16, 1953, Chicago, Ill.

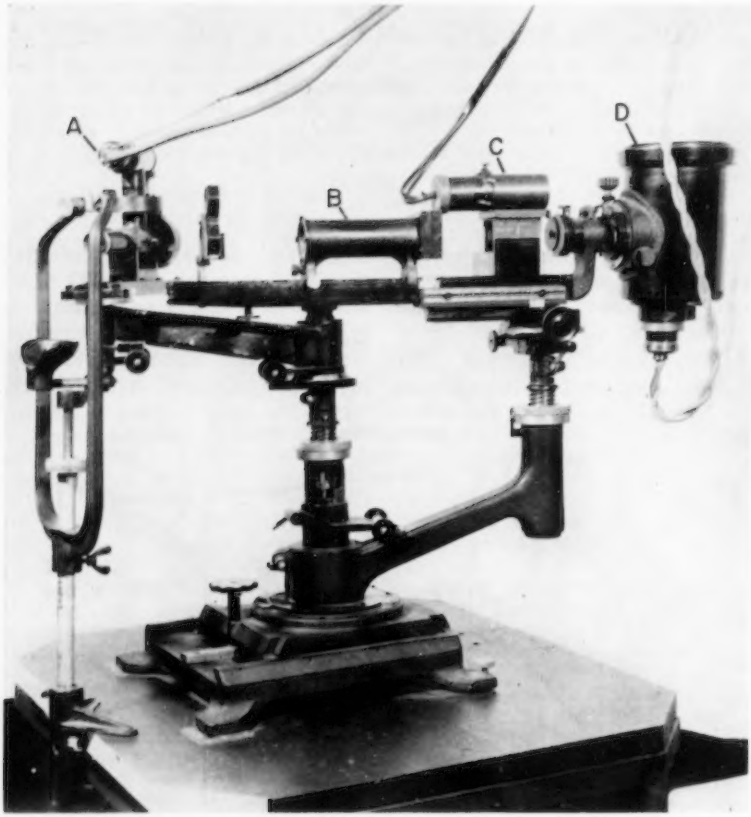

FIG. 2—Slit lamp photometer. A, detector; B, filter holder and cross hairs; C, monitor; D, lamp housing.

which allowed for control of both target and surround illumination.[5]

The lenses selected for this comparative study were the conventional fluid lens, the Tuohy corneal lens, the Obrig lacrilens and the Dallos glass ventilated lens (fig. 4). These lenses were selected because they represent different principles of fitting of contact lenses. All fittings were done by professional contact lens fitters. The spectacles were standard Army issue lenses prescribed after cycloplegic refraction. Ten selected volunteer enlisted soldiers served as subjects in this test. An attempt was made to select subjects with a representative variety of refractive errors (table I). Each subject was fitted with the four contact lenses to be tested. A graph is included which represents the comparative fitting data for the various lenses (fig. 5).

RESULTS

Halo Development

Measurable halos were found only with the wearing of the fluid lens (fig. 6), except on rare occasions when the

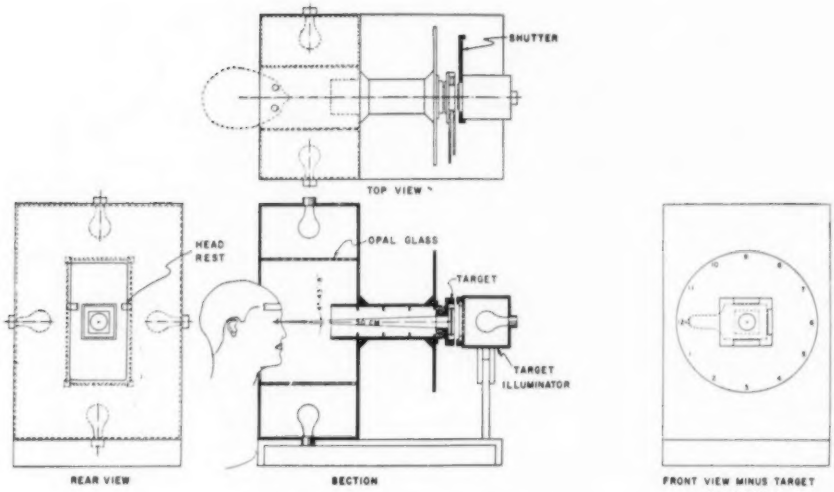

FIG. 3—Visual acuity test apparatus.

TABLE I.

AGES AND REFRACTIVE DATA OF SUBJECTS

SUBJECT	AGE *	VISUAL ACUITY						CYCLOPLEGIC	ACCEPTANCE
		UNCORRECTED			CORRECTED			O D	O S
		O D	O S	O U	O D	O S	O U		
R G A	22	20/200+	20/200	20/200+	20/15	20/15	20/15	− 2.75 • −0.75 X 120	− 2.75 • −0.75 X 68
J L A	21	20/200	20/300	20/200	20/15	20/15	20/15	− 2.50 • −0.25 X 90	− 2.50 • −0.50 X 90
C J D	22	20/60−	20/60−	20/60+	20/15	20/15	20/15	− 0.75 • −0.75 X 110	− 0.50 • −0.75 X 25
J L E	22	20/100	20/20	20/20	20/15	20/15	20/15	+ 4.25 • −2.50 X 3	+ 3.00 • −1.00 X 5
D J F	20	20/300	20/200	20/200	20/15	20/15	20/15	− 3.25	− 2.75 • −0.50 X 180
J K H	26	20/15	20/80	20/15	20/15	20/60	20/15	+ 3.75 • −0.25 X 90	+ 3.75 • −0.50 X 90
D R M	22	20/200	20/200	20/200	20/15	20/15	20/15	− 3.75 • −1.25 X 175	− 2.75 • −1.00 X 5
L F P	22	20/400	10/400	20/400	20/20	20/20	20/15	− 4.00 • −4.00 X 3	−4.00 • −4.00 X 180
E J S	22	20/400	10/400	20/400	20/20+	20/20	20/20+	− 3.50	−5.25 • −0.25 X 180
J L W	20	20/200	20/200	20/200	20/20	20/20	20/20	+10.00 • −2.50 X 175	+10.00 • −1.75 X 175

* AS OF 15 APRIL 1951

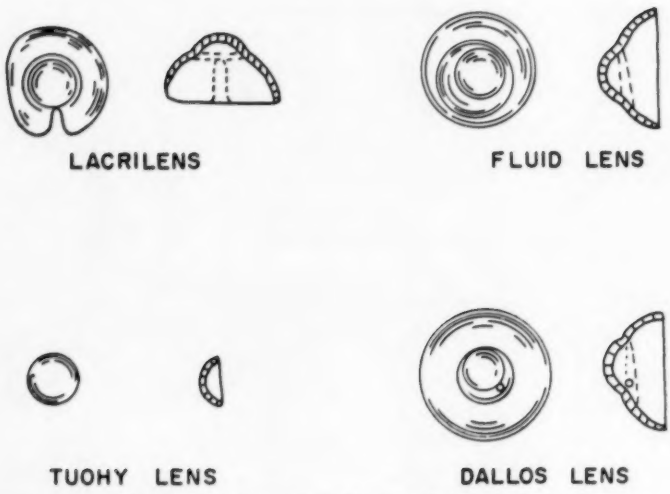

FIG. 4—Schematic presentation of lenses studied; left lens shown.

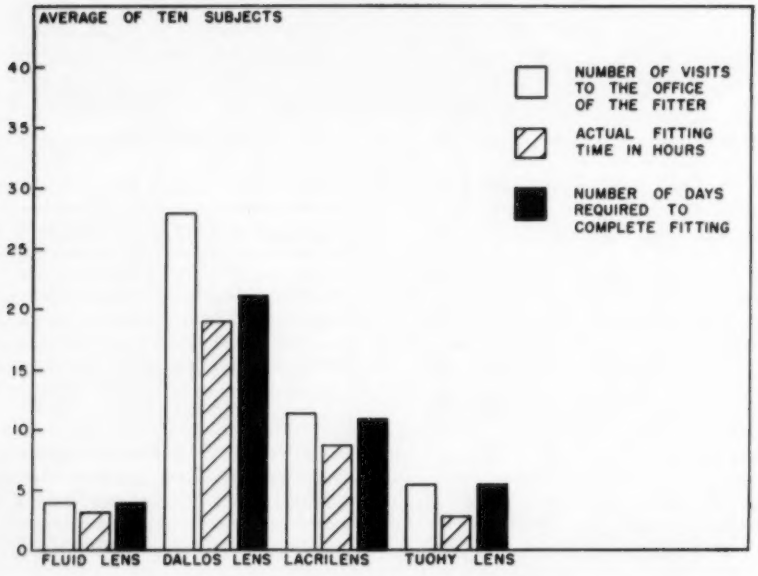

FIG. 5—Comparative contact lens fitting data.

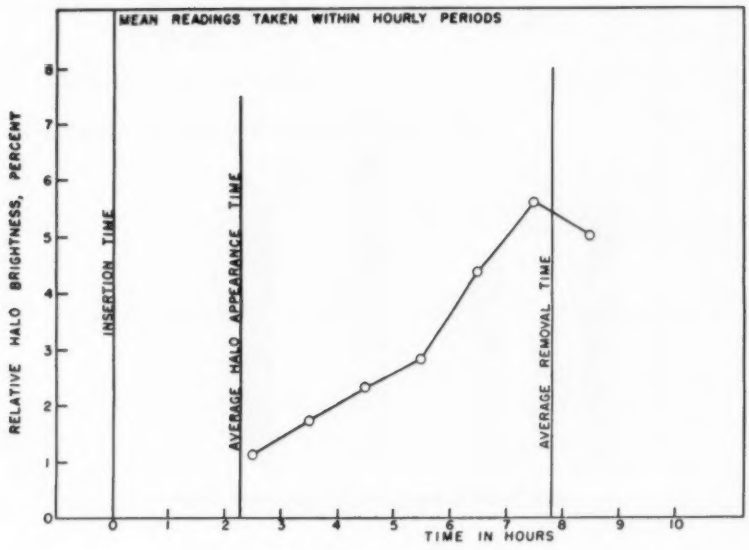

FIG. 6—Fluid lens halometry.

vent in the ventilated lenses became obstructed with mucus or edematous conjunctiva. An interesting variation was noted in the hot and cold rooms, where it was found that the halo appearance time was accelerated in the heat and delayed in the cold (fig. 7). It was theorized that these variations were the result of altered corneal metabolism at these extremes of temperature.

Corneal Turbidity or Haze

At the levels tested, measurable changes in corneal turbidity were found only with the wearing of the fluid lens (fig. 8).

Visual Acuity

Visual acuity was tested at twenty feet and at fifty centimeters. Testing at the fifty centimeter distance allowed for greater control of target and surround illumination. Photographically reduced Landolt C rings were used as test objects. Comparison studies revealed little variation in visual results at the different distances. Tests were run with target brightness of 1, 12 and 100 foot-lamberts and with surround levels of zero, 100, 200 and 300 foot-candles.

Virtually no change in visual acuity took place over an eight-hour period under the conditions tested when spectacles were worn (fig. 9).

Visual acuity with the Dallos lens and lacrilens remained essentially unaltered under these conditions in tests that frequently ran fourteen to sixteen hours (fig. 9). At no time was the drop in acuity more than from 20/20 to 20/28, and this was at low target brightness with high surround illumination. With zero surround illumination (fig. 10) little drop in acuity was noted even with the fluid lens. However, when the surround was increased the acuity dropped rapidly. Variation in target brightness altered the effects of the surround somewhat.

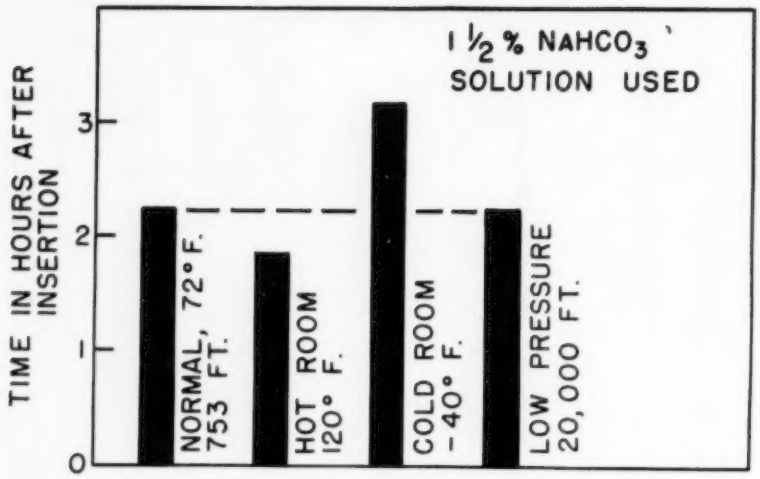

FIG. 7—Fluid lens, average halo appearance time.

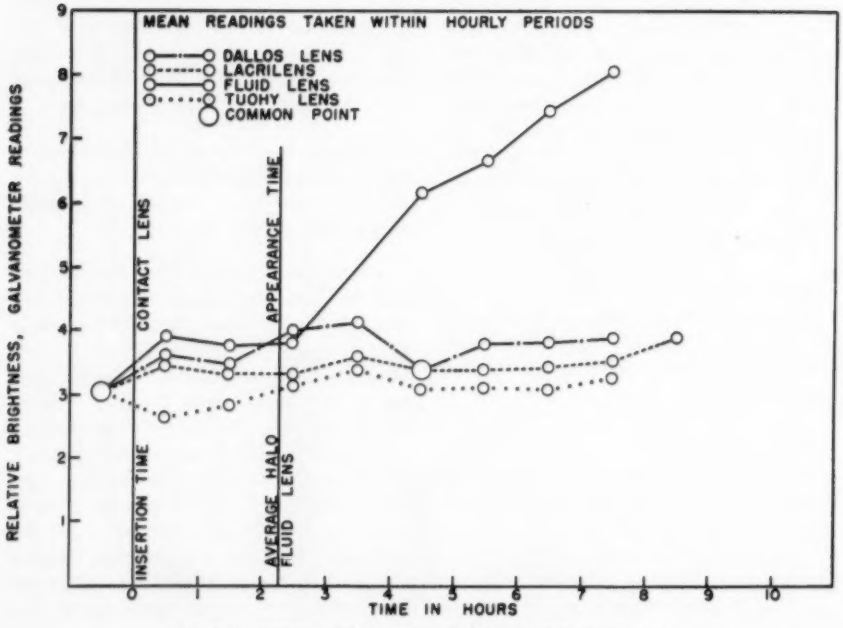

FIG. 8—Photometric readings of corneal scatter with contact lens.

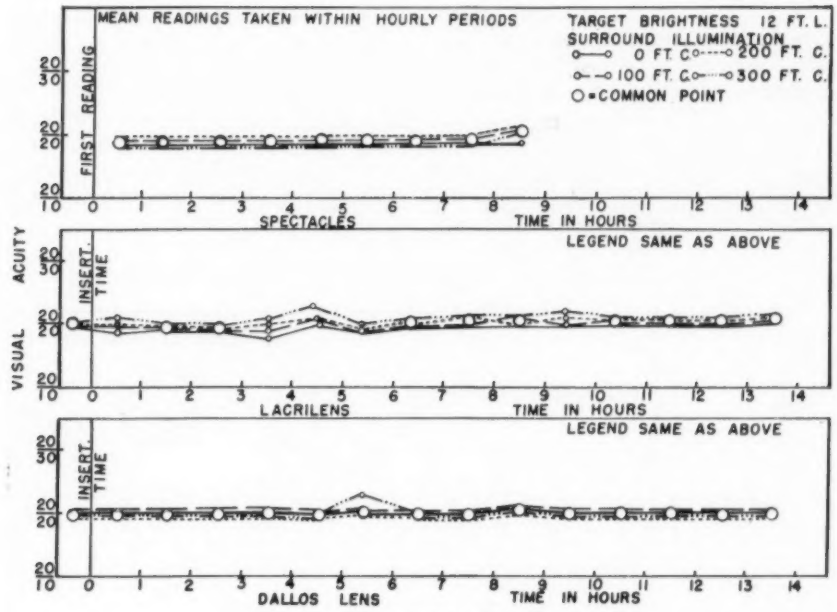

FIG. 9—Visual acuity tested at 50 centimeters.

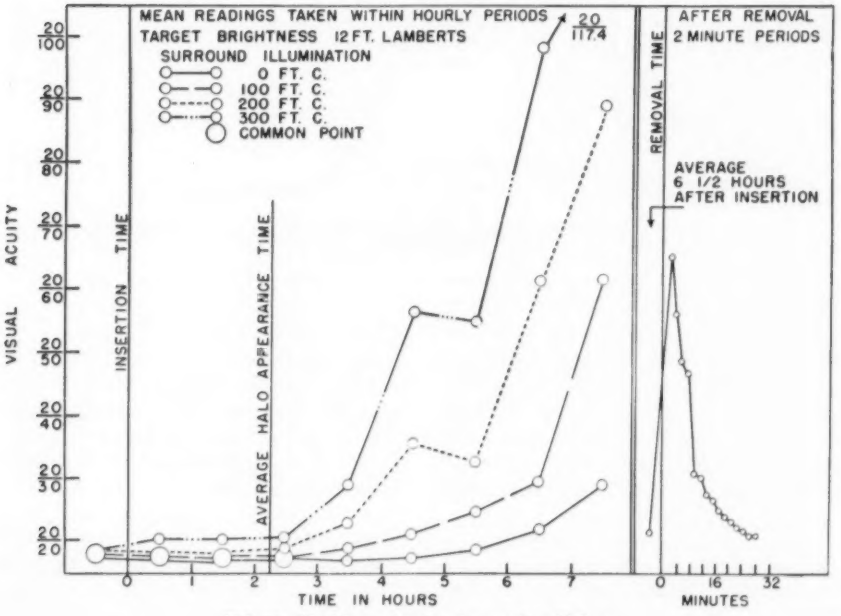

FIG. 10—Fluid lens, visual acuity tested at 20 feet.

The results of testing visual acuity with the Tuohy lens were quite bizarre. A number of subjects had considerable discomfort while wearing these lenses and their findings were extreme. In order to clarify the presentation of results, the data were divided into two groups (fig. 11). Group A includes the subjects who were unable to tolerate the lenses for four hours, and Group B those who wore them more than four hours.

Group B had little variation in acuity despite varying surrounds. Group A revealed marked and rapid decrease in acuity, which was greatly accentuated by increased surround illumination and target brightness. This effect was due to extreme irritation and light sensitivity rather than corneal haze.

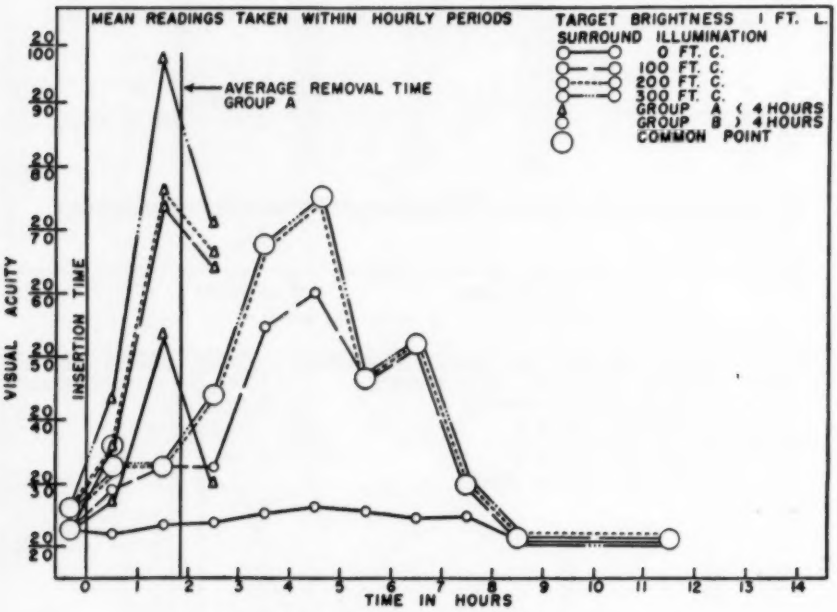

FIG. 11—Tuohy lens, visual acuity tested at 50 centimeters.

Photophobia

Using this same apparatus, an attempt was made to obtain some objective measure of photophobia. The results were in many respects similar to those of visual acuity in that in the presence of haze or irritation the photophobia became more intense just as the visual acuity decreased.

Dark Adaptation

With the exception of the fluid lens (fig. 12) there was no consistent variation in dark adaptation observed during a period of eight hours with contact lenses and spectacles.

Muscle Balance

No significant variation was found in muscle balance, as had been reported by some observers.[1,2,4]

Entoptic Field Changes

Entoptic field changes were observed by Finkelstein[3] with the wearing of the fluid lens. Consistent similar findings were seen in this study but only occasional scattered changes were observed with the wearing of the other lenses.

Visual Fields

Measurement of visual fields showed an increase of about 3 per cent in size with contact lenses over spectacles.

CLINICAL APPEARANCE OF THE CONJUNCTIVA AND CORNEA

When contact lenses were comfortably and asymptomatically worn changes in the clinical appearance of the eyes were seldom observed. This was true of all lenses, except the corneal lenses, which frequently produced stippled staining of the corneal epithelium despite comfortable wear. When any of the lenses were uncomfortable, tearing and injection of the eyes were observed.

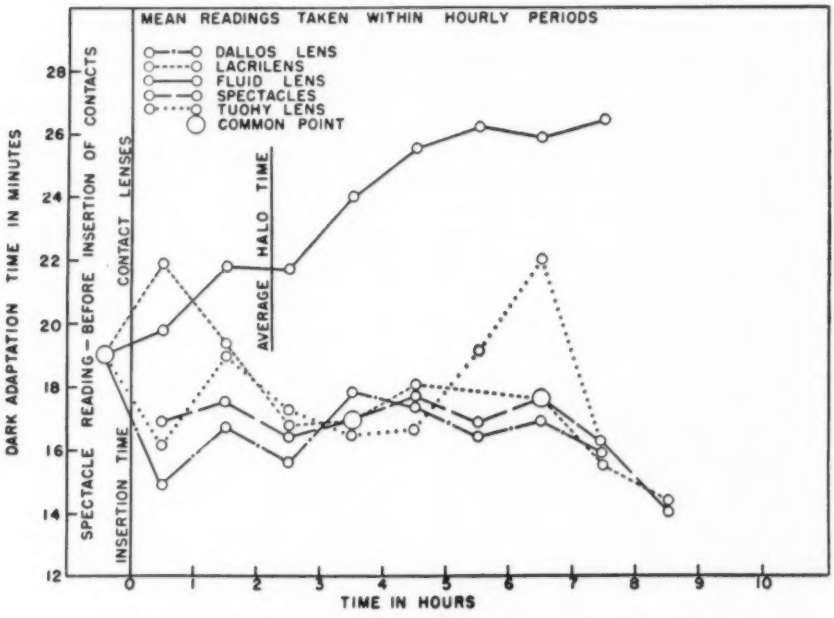

FIG. 12—Time required for dark adaptation with contact lenses and spectacles.

Color Vision

A slight shift to the green was seen with the wearing of the fluid lens, but this was not apparent with the other lenses.

Depth Perception

There was some variation between individuals and contact lenses and spectacles in tests for binocular acuity and spatial localization. There was no constant pattern of variation for each lens however.

Special Studies

Hot room. In general all subjects reported greater discomfort with all of the lenses in the hot room at + 120°

Fahrenheit. Symptoms of burning, tearing and photophobia were common. Halos, when present, appeared earlier. Spectacles were also at a disadvantage, as perspiration resulted in frequent spotting of the lenses.

Cold room. Results of studies at —40° Fahrenheit were far more satisfactory. Ocular irritation was greatly reduced and halos, when present, were delayed in their appearance. Spectacles were a problem, as they frosted over quickly and steamed when entering a warmer atmosphere.

Low pressure chamber. Tests run at the simulated altitude of 20,000 feet revealed little variation from the normal.

Field studies. For the most part contact lenses proved to be superior to spectacles in field tests. There were, however, advantages and disadvantages for each. Of the four contact lenses the Dallos lens and lacrilens proved superior. The fluid lenses resulted in haze and halo which produced reduction in vision and photophobia. The Tuohy lens also caused considerable irritation and photophobia. It also had the disadvantage of being easily dislodged from the cornea, and a number were lost during the field tests. Dust proved to be a major hazard in all of the contact lenses.

Protective factors of contact lenses. The transmission of harmful rays through the plastic and glass used in the manufacture of these lenses was tested, and it was found that the plastic offers partial protection against ultraviolet radiation, while glass protects completely. There is complete filtering of alpha rays and partial filtering of beta rays. There is virtually no protection against gamma and x-rays.

Contact lenses by their position in the eye offer a certain amount of protection against foreign bodies, mud, rain, and direct trauma.

GENERAL DISCUSSION AND CONCLUSIONS

A. *Advantages of Contact Lenses*

Contact lenses offer numerous advantages over spectacles to the military. These advantages for the most part are similarly applicable to the civilian populace. One of the foremost of these is their performance in inclement weather. Rain, snow and mud, which may interfere with vision when spectacles are worn, are no problem with contact lenses. The frosting and steaming of spectacles is avoided with contact lenses. Most headgear and sighting devices are so constructed that they are not completely adjustable to the individual needs of the spectacle wearer. The gas mask has always been a problem, as special lens inserts are required for individuals requiring visual correction. This problem is partly alleviated if contact lenses are substituted. The advantages of contact lenses in swimming are obvious, since spectacles cannot be worn.

In field activities and sports where the individual must undergo extreme physical activity, spectacles are at a disadvantage because of their vulnerable position. They are easily dislodged and broken. Contact lenses not only temper these problems but also offer further protection to the eye. They also reduce the mental concern that the spectacle wearer naturally exhibits in the face of physical obstacles.

Reflections from spectacles may reveal hidden position to the enemy; this is not so with contact lenses. Contact lenses may protect the eyes from foreign bodies and direct trauma. They also offer varying degrees of protection against harmful radiation.

Visual acuity in certain pathologic conditions of the cornea, such as keratoconus and irregular astigmatism, is much greater than with spectacles.

The visual limitations that spectacle frames create and the aberrations existing in high power lenses are eliminated when contact lenses are employed.

Generally speaking, the advantages offered by contact lenses to the military are more pronounced to the field soldier and to the civilian whose activities are strenuous and robust.

B. *Disadvantages of Contact Lenses*

The most outstanding disadvantages of contact lenses at the present are the cost, the time, and the skill required for fitting. These limitations stem from the necessity for individual processing that the current technics require.

The necessity for accessory fluids associated with contact lenses is another problem. Although the fluidless lenses are dependent on the natural tears for their function, a wetting agent is required for the plastic lenses. Maintenance of cleanliness and asepsis is also a problem.

Because of the small size of the lenses, they are easily lost and might conceivably be misplaced by the individual wishing to avoid responsibility. The plastic lenses are relatively unbreakable, but the glass lenses might easily be broken in handling. There is relatively little danger of breakage while the lenses are worn, but if they should be broken they could cause serious damage. Irritating gases, smoke and dust produce greater irritation than normal when lenses are worn.

Contact lenses are a potential source of infection in the eye.

Of the lenses studied, each had individual merits and disadvantages. Time does not permit a complete comparison. The two lenses that proved superior in performance were the Dallos lens and lacrilens. The principle advantage of these lenses was the absence, despite prolonged wearing time, of side effects which result in impairment of vision and discomfort. Their main drawbacks are the difficulty and time required in their fitting.

The fluid lens, which is relatively easy to fit, has a limited wearing time because of the corneal haze and halo that develops. Special lens fluid is also required.

The Tuohy lens is also relatively easily fitted, but it has protracted adaptation time and few of the subjects ever obtained comfort with this lens. It is also easily dislodged from the cornea and may be lost because of its small size.

Spectacles have numerous advantages over contact lenses. They are easily fitted and reduplicated at relatively low cost. There is a short period of adaptation and no limit to the wearing time. No solutions are required for their maintenance and wear. They do not vary the effect of ocular irritants, nor do they produce photophobia.

In view of the many advantages and disadvantages of spectacles, no blanket approval or disapproval may be made. In many cases of clerical and routine duty where neither spectacles nor contact lenses show to particular advantage, spectacles must be considered superior. In many phases of this experimental study, contact lenses proved to be superior. However, the relative ease of fitting and low cost must be considered a strong point in favor of spectacles.

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DISCUSSION

ARNO E. TOWN, M.D., Philadelphia, Pa.: As usual, the Army has done a fine piece of work in this study. This is the best attempt that I know of to make a scientific evaluation of contact glasses, and the various items of equipment and apparatus used are very intriguing.

In such a study, in which a comparison between various types of glasses is made, it is very important that the contact lens fitter have adequate experience in working with each type. The thought occurs to me that some of the shortcomings which have been noted in this paper may be due to inexperience in the fitting of the type of lens showing the shortcoming. The author has stated that certain types—notably the conventional fluid contact lens—are easy to fit. In my experience, I have yet to see a patient or a lens of which it might be said that the fitting was easy. Every case and every type requires the greatest of skill if it is to be properly fitted.

Only ten subjects were used in this study, of which only two were hyperopes and the remainder were myopes. It seems that a larger and more representative group should be included for such a comprehensive study, since the psychophysiologic variations between individuals are often considerable.

The author found measurable halos only with the wearing of the fluid lens. In my experience, I have found that all types of contact lenses can cause halos, due to edema of the cornea. The author also discusses corneal turbidity. Corneal turbidity is, in reality, an edema of the cornea which is the cause of the halos.

The statement is made that the results of testing visual acuity with the Tuohy lens were "quite bizarre," principally due to the discomfort produced by the lenses. Naturally, an individual who is wearing an uncomfortable lens will suffer diminished visual acuity. If the lenses caused considerable discomfort, it would seem that they were not properly fitted and should not have been included in the study. Visual acuity can be influenced by the distance between the posterior surface of the contact lens and the anterior surface of the cornea. This distance may change with the wearing time.

Where photophobia occurred, the inference must be that the lenses were not properly fitted. A well-fitting, comfortable contact lens will not produce photophobia.

I agree with the author that contact lenses do not influence muscle balance.

In discussing clinical appearances, the author states that frequently the corneal lenses produce stippled staining of the corneal epithelium despite comfortable wear. It is my contention that all types of contact lenses when improperly fitted may cause abrasions of the cornea. If tearing and injection of the eyes are observed, corneal abrasions, even though microscopic in size, will be found if carefully searched for.

This brings to mind the statement that contact lenses are a potential source of infection. I cannot agree with this statement, unless the lenses are not properly fitted. In my opinion, with reasonably hygienic care no infection will occur from the wearing of a lens which does not cause corneal abrasions.

To the advantages of wearing contact lenses which have been mentioned, I should like to add the indication in monocular aphakia. The author with good reason, has pointed out the disadvantages from the standpoint of time and skill required for the fitting process. Unless a great amount of time and utmost skill are employed, the result is doomed to failure.

This drawback is particularly evident, the author states, in the fitting of the Dallos lens and the lacrilens. However, I prefer these types over the corneal lens, which requires considerable trial and error in the fitting and hence, I feel, is more time-consuming and frustrating than other types. I do not feel that the fluid lens is relatively easy to fit, and

the wearing time may be as long as that with any other type. If the lens is properly fitted, corneal haze and halos will not appear.

Mention might be made at this point of my observation that the plastic lenses may cause allergic manifestations to such an extent that glass lenses must be substituted. This has been my experience in several instances wherein patients with keratoconus could not tolerate plastic, and yet for them contact glasses were an absolute necessity.

As Dr. McGraw states, glass lenses have a distinct disadvantage in the fact that they may be broken. However, I have never known of a glass being broken in an eye and causing damage, and actually I feel that they are a protection in cases of trauma. The danger of damage from the breakage of a glass contact lens is less than that of a broken spectacle lens.

I feel that perhaps the Tuohy corneal lens should not be so harshly criticized, as in the statement that it has protracted adaptation time and few obtain comfort. I have seen numbers of patients who have an unlimited wearing time with this type of lens when it is properly fitted, which of course is the key to a satisfactory lens of any type. However, if one uses the Tuohy corneal lens, extreme caution must be observed in order that it does not promote corneal abrasions, which may in turn amount to corneal ulcers.

Dr. McGraw is to be congratulated for making a notable contribution to our knowledge of contact lenses. There is much about the technic and the lenses that is not understood, and considerable research remains to be performed before the correct answers are known.

GEORGE K. SMELSER, M.D., New York, N. Y.: Contact lenses have engaged the attention of ophthalmologists for some sixty or seventy years. During this period a very large number of lenses have been designed and produced by various workers in the field. Perhaps, naturally, each worker rather favored his own product and is biased in his judgment. I think it is for this reason that we have had so many unfortunate reports related to the general effect of contact lenses and their use.

It was not until this study that anyone undertook an unbiased discussion or comparison of different lenses. Dr. McGraw has instituted one thing which was lacking in all the preceding studies. He has instituted a system of controls. You will note that he mentioned that each of these subjects was fitted with each type of contact lens which he wished to investigate. He was fortunate in his choice of subjects. Most of us know G.I.'s. I know these particular G.I.'s. You cannot fool them, and if given the slightest opportunity they will tell you very frankly their opinion of contact lenses and many other things.

There was another control that I felt Dr. McGraw unfortunately failed to emphasize in his report. These lenses were fitted by individuals from the companies involved in the design and production of the lenses. He said they were professional contact lens fitters. Actually, the Dallos lenses were fitted by Dr. Dallos himself; the Tuohy lenses by Mr. Tuohy; the lacrilens by Mr. Salvatore from the Obrig Laboratories. No time limit was set by Dr. McGraw and his group as to how long they should take to fit these lenses. When these experts finished the fitting, they agreed, or tacitly admitted, that the lenses were fitted according to their own standards.

Perhaps the key to Dr. Dallos' long-time fitting period could be obtained this way: Dr. Dallos does not have poorly fitted lenses, because if they are poorly fitted in his opinion, he never stops. However, in this present series, modest though it is, you will observe that Dr. Dallos and the other fitters did succeed in fitting each of these young men with lenses of each type. There was no motivation for wearing lenses other than to correct their refractive errors, so the psychologic aspect does not enter into this particular study.

Prior to Dr. McGraw's investigation, laboratory experiments had been done on the effect of contact lenses on the eye. His work serves to translate these laboratory results into practical usefulness, and extends our knowledge of the suitability of contact lenses in general practice. His study shows that contact lenses are a valuable adjunct to vision when their prescription is properly indicated and, further, that contact lenses exist which give long useful wearing periods without deleterious effects on the eye. The successful conclusion of this practical evaluation rests on the understanding of functions of the eye which are affected by contact lenses.

Of greatest interest to physiologists and ophthalmologists is the demonstration of a fundamental physiologic activity of the cornea, which until recently was unknown and probably would receive scant attention if its importance had not been emphasized by the effect of contact lenses on the optical properties of the cornea.

The transparency of the cornea is not simply developed in the embryo to be retained as a structural characteristic throughout life. It

is a physiologic characteristic which must be maintained by continuous metabolic activity of some of its components. The cause of the cornea's normal transparency is not clearly understood. The connective tissue stroma, which makes up some 90 per cent of the cornea, consists of cells, regularly arranged collagenous fibers, a complex mucoid ground substance, and intercellular fluid. It is probable that collagenous fibers dispersed in ordinary tissue fluid would not be as transparent as in the cornea. According to Caspersson (Nord. med., 30:1279-1282 (June 7) 1946) the indices of refraction of collagenous fibers and such fluid are so different that the transparency of the mixture would be slight. He suggests that the fibrils may be surrounded by a medium which provides "a gradient of index of refraction" from fiber to fluid, so that "no internal losses of light will appear either due to reflection or to refraction." The mucoid, of which there is a considerable quantity in the cornea, may serve such a function.

Due probably to its mucoid content, the cornea tends to imbibe fluid from limbal vessels and to swell. The swollen cornea is turbid, the imbibed water lying between its lamellas, separating them mechanically and probably changing the refractive index of the intrafibrillar fluid. The continuous removal of this fluid is one of the functions which the cornea must maintain and with which the usual contact lens interferes. It has been shown that although a hypertonic precorneal tear film would aid in this process, it is neither the only nor the most important mechanism involved. Furthermore, it is not a primitive one, for the cornea of fresh water fish, which is transparent, has no such film, as their eyes are continually bathed by a hypotonic medium. When conventional contact lenses are worn by animals, their corneas become turbid and swollen, as they do in the human, and the lactic acid content increases, indicating an interference with their carbohydrate metabolism. Langham (J. Physiol., 117:461-470, 1952) has demonstrated that the lactic acid content increases in vivo when the cornea is placed in an oxygen-deficient atmosphere. Although it is clear that water removal from the cornea is a metabolic process, the precise mechanism by which this is done is still unkown. Presumably the active transfer of some substance (e.g., Na+) from the cornea to the aqueous humor or tear film is the essential step in pumping out the water.

Changes in the optical properties of the human as well as the animal cornea occur when contact lenses prevent adequate access of the cornea to atmospheric oxygen, which is necessary to its normal function. The same phenomena, colored halos for example, have been produced by exposing the eye to an atmosphere of nitrogen contained in goggles, with no foreign fluid or device touching the eye (A.M.A. Arch. Ophth., 47:328-343 (March) 1952). Dr. McGraw in similar experiments, which although unpublished he allows me to mention, showed that the cornea also becomes turbid, as it does when a contact lens is worn. He found that in an atmosphere of nitrogen (the controls were in air) the average amount of light scatter (turbidity) in the corneas of four subjects was as follows:

	Before	After 4 hours
Nitrogen	2.6	4.85
Air	2.75	2.83

The figures represent relative brightness of the scattered light, and were obtained as described in his paper. Thus, the primary corneal changes caused by standard contact lenses have been shown to be due to oxygen lack. These effects are avoided by lenses providing adequate ventilation, as proved by Dr. McGraw's study.

In focussing our attention on the basic physiology of the eye through such a successful and intensely practical research program as this, we are again reminded that progress in both fields is closely linked.

ORBITAL CHOLESTEATOMA: REPORT OF A CASE

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THE TERM "cholesteatoma" is generally intended to indicate an epidermoid tumor with a high cholesterol content, but the finding of a high cholesterol content is not constant. The first reference to epidermoid tumors in the literature is apparently that by Cruveilhier in 1829, who called it a "pearly tumor." Mueller introduced the term "cholesteatoma" in 1838 because of the cholesterol crystals found in his specimen. Teed[3] lists 87 references concerning this condition in various sites in the human. Duke-Elder[2] mentions that only 22 cases of orbital cholesteatoma have been reported in the literature.

Cholesteatomas are of two types: congenital and traumatic. The congenital type is considered by twelve investigators (Remak, Heimendinger, Cushing, Skillern, McFarland, Ewing, Coates, Critchley and Ferguson, Love and Kernohan and Bailey) to arise from misplaced or aberrant epithelial cells. Depending on the depth of the layer or the embryonic age, either epidermoid or dermoid tumors may arise in this manner; if just the squamous epithelium is concerned, an epidermoid tumor results; if ectodermal epithelium together with mesodermal corium and connective cells, fat cells, sebaceous glands and hair follicles is aberrant, then a dermoid tumor results.

The congenital type has been noted in the breast, diaphragm, liver, gallbladder, stomach, intestinal tract, pancreas, spleen, kidney, urinary bladder, ovary, testis, uterus and other parts of the body. However, according to Teed, its usual location is in the head, and he attributes this to errors occurring during the developmental stage of the pharyngeal pouches. The structural tissues involved have included the mandible, floor of the mouth, lateral pharynx, supratonsillar fossa, superior maxilla, antrum, ethmoid and frontal sinuses, the frontal bone, the parietal bone and its squama, the sphenoid and occipital bones, the orbit and even the iris. Neural tissue is frequently involved. It may arise from the meninges of both the brain and the spinal cord; by pressure it has become secondarily located in various brain sites such as the frontal lobe, the corpus callosum, the base, the suprasellar region, the convexity, the midline of the hemispheres and the cerebellomedullary region. As long ago as 1683 a "steatoma" was reported between the cerebrum and the cerebellum in a man who had died of apoplexy. It has occurred in the lateral, third and fourth ventricles, where it has developed from the choroidal plexus, and has extended into the spinal cord from the meninges.

The second type is that which follows trauma, according to Ewing. Inward displacement of skin cells by this trauma may be the mechanism.

Grossly, an epidermoid after removal has a white glistening capsule, which is described as "mother-of-pearl" in ap-

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pearance. This capsule is frequently very thin and friable and may be difficult to remove from the dura when in that area. The contents may vary from a firm, more or less caseous, whitish yellow laminated mass, with a soapy or waxy appearance and an absence of vascularity, to that of a softer whitish or grayish necrotic mass. The appearance depends on the stage of degeneration.

The microscopic sections are variously described as having either three or four layers, but show an outside fibrous layer, within which are flattened cells which may contain keratohyalin; the internal portion is composed of degenerated epithelial cells and may show fat and cholesterol crystals.

DIAGNOSIS OF EPIDERMOID TUMORS OF FRONTAL BONE OR ORBIT

There is a deformity of the frontal bone or orbit dependent on its location and development. Erosion of the bone occurs and orbital proptosis follows; the globe is depressed, with limitation of upward motion, and diplopia may be present. Visual reduction depends on the amount of pressure. Occasionally local headache occurs. There are seldom symptoms referable to the central nervous system. The tumor is usually firm. The roentgenograms show a round or oval defect with smooth borders. The patients are usually otherwise perfectly healthy. Examination of the tumor contents reveals a laminated, rather firm, whitish yellow, cheeselike, waxy, odorless material of acellular character. Cholesterol crystals may or may not be present.

THE DIFFERENTIAL DIAGNOSIS

There are nearly one hundred diagnoses to be considered in tumors of the orbital region. From the skin there are swellings such as sebaceous cysts and traumatic epithelial cysts.[1] From the paranasal sinuses there are mucoceles, osteomas, fibromas and malignancies. From the orbit there are dermoids, vascular tumors, pseudotumors, fibromas, lymphosarcomas, neurogenic tumors, invasive tumors originating in the lacrimal gland, or other connective tissue growths. Extension from tumors of the meninges or pituitary, or from other intracranial growths, can occur. Systemic disorders and metastatic growths need to be excluded, such as thyrotoxicosis, xanthomatosis, leukemia, metastatic growths from the adrenal, prostate, breast and other glandular areas, from sympathetic ganglia and granulomas such as syphilis.

CASE REPORT

A 45-year-old white single male was first seen by one of us (L.R.D.) on March 12, 1952. He came in because of a progressive swelling in the right orbit which had been first noticed in October 1951. Discomfort was increasing and on attempted right version of the globes, diplopia was being noticed. The rest of the history, the systemic review, and all laboratory work were entirely noncontributory.

The pertinent past history consisted of (1) a blow to the right orbit at the age of 8 years as a result of a fall from a bicycle and (2) a laceration of the right supraorbital area as the result of a blow from the prongs of a rake, following which several sutures had been inserted with prompt healing of the laceration.

On examination he seemed to have a displaced lacrimal gland; behind this was a firm mass approximately 5 mm. in diameter, protruding from 10 o'clock on the right orbital margin, which was nontender and noninflammatory in appearance. There was no fluctuation, pulsation, or discoloration. The globe was depressed 3 mm. and proptosed 2 mm. and there was limitation of motion in the field of the superior rectus (fig. 1). The vision was 20/20 with each eye, and perimetric and tangent screen examination failed to reveal any visual field loss. The media were clear, and the fundus was entirely normal to examination.

The tentative diagnosis was of a discrete solitary orbital tumor with symptoms due to displacement of soft tissues and probable bony pressure changes. Roentgenographic examination later agreed to, and disclosed a 3 cm. radiolucent area in the right frontal bone (fig. 2). This, however, was reported as "osteomye-

FIG. 1—Right orbit; a, side view; b, front view, taken preoperatively.

litis," and antibiotics were therefore given for two weeks. Original and repeat x-rays were reviewed by several roentgenologists without any conclusive opinions. Because of the progressive proptosis to 4.5 mm. and depression to 4 mm., with increasing discomfort, surgery was repeatedly urged and finally accepted. He underwent a craniotomy in Springfield, Massachusetts on June 11, 1952, under the care of Drs. Joseph Hahn and Benjamin Alport.

FIG. 2—Roentgenogram of right orbit taken preoperatively.

The surgical report follows:

The usual transfrontal incision was outlined and infiltrated with novocain. The medial limb of the incision was carried further down on the forehead than usual in order to gain adequate room for exploration of the roof of the orbit. A skin-galeal flap was then reflected. A bone flap, with its hinge beneath the temporal muscle, was then fashioned and reflected laterally. The dura was of normal color, was not tense. Retraction of the frontal lobe was then done and the roof of the orbit well visualized without any definite evidence of bony involvement. There was no erosion, nor was there any tumor presenting itself intracranially. A good view was also obtained of the cribriform plate on the right side, and no abnormality was noted here. Attention was now directed to the supraorbital bone. There was a defect in the bone involving the outer table and the lateral third of the supraorbital ridge. The supraorbital ridge here was replaced by a thin, fibrous type of tissue. Presenting through this defect in the bone was a tumor mass. The tumor mass was well encapsulated, and by blunt dissection it was possible to develop a line of cleavage between the encapsulated mass and

the orbital contents. When this was completed, this encapsulated mass was approximately the size of a large cherry. The capsule itself was a dirty brown, and upon opening this capsule, chocolate colored fluid escaped. This fluid had the appearance seen so often in typical chronic subdural hematomas. The capsule was then further opened, and dirty brown and golden mushy material extruded upon slight pressure. Several of these were obtained for microscopic frozen sections. It was now possible to further develop the line of cleavage between the encapsulated tumor and the orbital contents posteriorly within the orbit. By gentle traction on the capsule, it easily rolled out en masse, and the entire specimen was sent to the laboratory. Exploration of the orbit was now done. The periorbital fat was normal, there was no further extension of any tumor tissue, and this was ascertained by Dr. Benjamin Alport, the ophthalmologist who assisted during the operative procedure. The interesting feature, bearing in mind the x-rays and skull films, was that this tumor mass had eroded the lateral third of the supraorbital ridge and also the outer table of the frontal bone immediately above the ridge. Tumor tissue was also removed from this eroded area, and the remainder of the bone well cauterized with a Bovie unit. As had been previously ascertained from the intracranial exploration, there was no evidence of the tumor through into the immediate cranial cavity. The removal of the tumor and the bony destruction left a defect approximately ¾ inch in the lateral third of the supraorbital ridge and the immediate adjacent frontal bone. Slight ooze from the bone was controlled with gel foam placements. The intracranial portion of the exploration was now carefully re-inspected, and there was no evidence of further bleeding, except from the medial portion of the exposure where one or two small veins apparently had ruptured. These were readily controlled with gel foam placements. The bone flap was now replaced and held by two steel wires, and two tantalum clips were placed in the anterior burr holes which lay beyond the limits of the hairline. The skin-galeal flap was then replaced and sutured in two layers with silk. Patient's condition at the termination of the operation was good.

SURGICAL PATHOLOGY REPORT

A. Biopsy of tumor of orbital cavity. B. Tumor of orbital cavity.

Gross Description "A": The specimen consists of two pieces of tissue received in formalin which are roughly similar in appearance. One is larger than the other and measures 1.5 x 1 x 0.5 cm. It has a papillary lobulated appearance, is yellowish brown in color, and fairly firm to palpation.

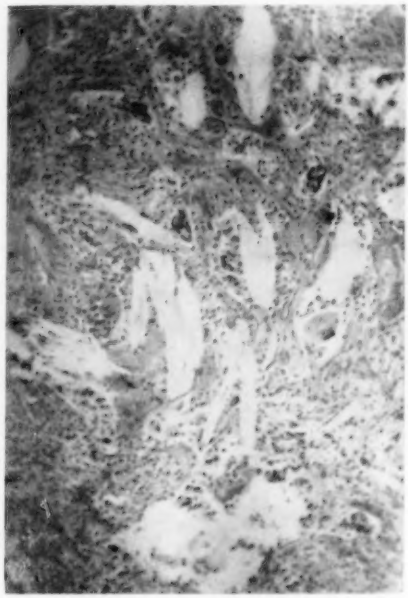

FIG. 3—Photomicrograph of tissue showing rhomboid and cigar-shaped spaces containing cholesterol crystals.

Gross Description "B": The specimen consists of four pieces of tissue received in formalin. The largest of these is an elongated piece of tissue measuring 5 x 1.5 x 1 cm. It appears to be cystic. In one area or at least thinned out in this area is a narrow rim of tissue about 2 cm. wide. Throughout all the pieces, they have a bright yellow appearance. They are firm to palpation, papillary in appearance. One of these pieces appears to be bone with a smooth whitish surface on one side and a yellowish surface on the other, as is seen on the other pieces of tissue.

Microscopic Description: Sections of both A and B are similar in appearance. Both are made up of masses of loose and fairly well vascularized connective tissue containing clumps of calcified material around which foreign body giant cells are frequently clustered. There is a vast accumulation of cholesterol crystals characterized in the H and E sections as elongated rhomboid and often cigar-

FIG. 4—Right orbit; a, side view; b, front view, taken two weeks postoperatively.

shaped spaces around which histiocytes and foreign body giant cells have accumulated (fig. 3). Many brown pigment-carrying macrophages are also embedded in this conglomerate tissue. Throughout the sections one recognizes bone spicules which appear to be pre-existing and some of which even appear to be undergoing destruction. The entire lesion is considered a cholesteatoma.

Microscopic Pathological Diagnosis (final): Cholesteatoma of the bone.

SUMMARY

Cholesteatoma must be included in the differential diagnosis of orbital tumors. A case report of this rarely reported condition is presented with its typical history and clinical findings, and with a complete recovery (fig. 4). There may have been a traumatic component. The sections were presented to a group meeting of pathologists as an "unknown" for discussion and diagnosis, and the diagnosis was concurred in.

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LOWER LID REPAIR

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IN MANY ways repairs of the lower lid are simpler than those of the upper lid. First of all, the lower lid is relatively narrower; hence tissue loss is more easily replaced. The lower lid is also less prominent; hence lesions and scars of repair are less conspicuous. And, most important of all, the lower lid moves very little; therefore, function as translated into movement becomes less important when planning a repair of the lower lid.

I should like to discuss with you a few of the more practical aspects of lower lid repair; not the complicated and relatively rare reconstructions, but the common conditions that you and I see in the office daily. I have divided these conditions into three groups: those that do not involve the lid margin; those that involve only the anterior half of the lid margin, the ciliary margin; and those that involve the whole margin of the lid.

In the first group, those that do not involve the margin, are the smaller lesions, such as the xanthomas, fibromas, hemangiomas, and the small epitheliomas with the repair of which you are all familiar. Most of these require only excision and closure. I think there are one or two points of interest that ought to be made. First, the question of whether to use the desiccating needle or the scalpel always comes up. You can get good results with both modalities. I have seen both and I have used both, but there are one or two precautions. In using the coagulating needle you have to be careful not to go too deeply or you will penetrate subcutaneous tissue, with resultant scarring. Also, in the case of the darkly pigmented individual, I have seen a startling white blemish replace a yellow xanthoma removed by electrodesiccation. I am not sure that the postoperative result in this case was an improvement over the original lesion. Hence, the possibility of depigmentation in the dark-skinned patient should be remembered, and I think when in doubt I would always use a knife.

FIG. 1—The orbicularis: semidiagrammatic scheme of the course of its fibers.

The other point I want to make is to stress the old dictum that wherever possible, incisions should be so placed that they parallel the orbicularis. In most cases this means that they parallel the margin of the lid.

Figure 1 is a schematic representation of the orbicularis fibers, the palpebral portion. As you see, the fibers in the main run parallel with the lid margin. Hence, wherever possible, incisions should be made horizontally because if they are made vertically, they are more

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a b

FIG. 2—a, Basal cell carcinoma of the lower lid; b, result of repair by skin graft from upper lid.

likely to gape. If this is done and closure is made with ordinary care, I do not think we have to hesitate to incise the lid freely even when we are going to remove a chalazion by the external route.

Of course it is not always possible to handle so easily lesions that do not invade the lid margin. There are some that require a much more elaborate approach. The commonest of these, as you know, is the basal cell tumor. It is quite common in this area, it is slowly invasive, it rarely metastasizes, and if it is excised cleanly, a good result is always assured.

A large flat basal cell carcinoma, involving the whole medial aspect of the lid is shown in figure 2a. The scheme of repair is somewhat as follows: First the lids are joined, fused with a tarsorrhaphy. Then the lesion is excised, and usually only skin is resected because these are not invasive tumors. However, as a precaution, a good healthy area of skin is removed all around.

Then a graft is taken from the homolateral upper lid and sewed into the lower lid and the upper wound is closed. A characteristic of lid skin, as you know, is that it does not shrink, so that if you take approximately the same size, or just a little more, the result is good. The final result is seen in figure 2b. When the external half of the lid is involved, it is treated in exactly the same way.

It is interesting to note how, irrespective of etiology, fundamental technics are always valuable. In a case of bilateral cicatricial ectropion (fig. 3a), because we needed skin when the lower lid was incised horizontally and undermined, we had exactly the same situation as when we excised the carcinoma and exactly the same procedure was used. In other words, the lids were fused, etc., and graft was taken from the upper lid. The appearance of the patient after the left lower lid had been repaired and just before the tarsorrhaphies have been freed is shown in figure

a b c

FIG. 3—a, Cicatricial ectropion of lower lid; b, repair by skin graft from upper lid with tarsorrhaphies in place; c, final result.

a b

FIG. 4—a, Small tumor of ciliary margin of right lower lid; b, result of repair.

3b and the final result in figure 3c. In other words, it makes no difference whether the lesion is a neoplasm, an inflammatory lesion or trauma, fundamental technics remain the same irrespective of etiology.

I shall report just two cases involving only the anterior lid margin and not the whole margin. Figure 4a shows a small tumor in which lid splitting, triangular excision, undermining and closure was done quite simply. The lid behind the lesion was split, and the tumor to be excised was outlined and removed. The wound margins were undermined and enough sutures inserted to make for good closure. Sometimes it is necessary to put a few sutures in the lid margin itself. That is not always necessary, however. The result three weeks after the repair is shown in figure 4b.

A somewhat larger tumor, a small basal cell carcinoma (fig. 5a) required excision of more tissue. The repair was based on the technic of the late Dr. Wheeler, but here also splitting of the lid is the fundamental technic.

The whole lid was split from one canthus to the other. The tumor to be excised was outlined with some healthy tissue all around, and a horizontal incision was made below in order to convert the whole lower lid into two sliding flaps. Then the tumor was removed, the sliding flaps were undermined and the two flaps were drawn together and enough sutures inserted to make for adequate closure. The healed result is shown in figure 5b.

In the third group we have placed lesions which involve the whole lid margin, and the technic, of necessity, becomes a bit more complicated. Here lid halving as well as lid splitting becomes one of the fundamentals of the technic. I shall not go into lid halving, which will be outlined by Dr. Beard.

a b

FIG. 5—a, Basal cell carcinoma of left lower lid; b, three months after repair.

a b c

FIG. 6—a, Pigmented tumor involving the full width of right lower lid; b, appearance before removal of sutures; c, final result of repair.

Here again, as you see, we encounter a very small pigmented tumor, potentially malignant (fig. 6a), which requires excision of the whole thickness of the lid. Because the tumor is small, we can still resect in a triangular fashion, and here is where the lid halving comes in. In other words, the lid is split. A sliver of tarsoconjunctiva is removed on one side, and a sliver of skin-muscle is removed on the other side to prepare for the halving closure. A double-armed suture is placed from within outward. Closure is made, and then additional sutures are inserted.

The lid split was carried all the way out to the canthus (fig. 6b). Sometimes if the two edges do not come together easily, you have to incise medially, too. The final result is very satisfactory (fig. 6c).

I should like to emphasize again that it does not make any difference whether you have a pigmented tumor or a notch of the lid due to trauma, the technic remains the same. If that had been a notch, you would have simply freshened the edges and then the technic would have been identical with that used in figure 6.

For a larger central notch the technic will employ the use of the sliding pedicle. There was quite an extensive loss of tissue in the center of the lid in the case illustrated by figure 7. It was quite heavy and fibrous and, therefore, no additional grafting had to be done. In other words, no tissue had to be borrowed from somewhere else.

The first step in the technic by which you intend to pull over a large pedicle flap is to make sure that the pedicle comes over easily. This is done very simply at the external half of the lid because you can do a canthotomy and then a cantholysis. In other words, you

a b

FIG. 7—a, Central notch of left lower lid; b, result four weeks after repair.

a b

FIG. 8—a, Medial notch of left lower lid; b, final result of repair.

cut through the lower lip of that external canthal ligament, allowing the flap to be pulled over, and thus convert the external remnant of the lid into a sliding pedicle.

The pedicle is undermined. Relaxation sutures are placed so that when tied the flap could be drawn over medially. A halving closure is prepared vertically and skin sutures are placed so that when they were tied the pedicle is drawn over medially. The final result in our case, even with the scars, four weeks after the repair is shown in figure 7b.

In a case of loss of tissue in the medial portion of the lid (fig. 8a), a modification of the Hughes procedure was used. The scheme of the repair is as follows: Because there is more loss of tissue and because it will be easier to work with it in rectangular fashion, the notch is converted into a rectangular notch, and again an incision is made below in order to have two skin pedicles to pull over. The two pedicles are undermined, but unlike the case just presented, we have to replace tarsoconjunctiva. The best place to get it is very close at hand in the upper lid. So the upper lid is slit. A sliding graft of tarsoconjunctiva is prepared by two vertical incisions, and the flap is pulled down and sutured into position. The two skin flaps are pulled over and enough sutures are inserted to complete the repair. The final result is shown in figure 8b.

We had a recent case of a small basal cell carcinoma which involved not only the outside of the lid and the lid mar-

a b

FIG. 9—a, Avulsion of right lower lid from internal canthus; b, final result of repair.

gin but also some of the conjunctiva on the inside. Exactly the same technic was used as we used for the traumatic notch. Because the lesion was more temporal, a larger pedicle was used temporally and a smaller one medially. Only five days postoperatively those pedicles were of good color and there was a good final result.

I want to stress again that it does not make any difference whether you deal with a traumatic lesion or a neoplastic lesion, fundamental procedures remain the same. However, I do want to stress that when I say fundamental procedures, that does not mean that the procedures which I show are inclusive. These are one or two of the many procedures which are available and which work, but these just happen to be the ones that I like to use.

The last procedure I should like to present deals with an avulsion of the lower lid from the internal canthus (fig. 9a). In my experience this is almost as frequent as notching of the lower lid in traumatic lesions.

I am not going into the other aspects of lacrimal repair in these cases because time does not allow, and I must confess that my success with lacrimal repairs, unless I get them very early, is not very conspicuous. However, the cosmetic repair is very easily done and usually one gets a good result.

This is one of the technics that is available. First, the main object is to free that whole lower lid and to be sure that it comes over easily. (No repair is of any value unless the two lips of the wound come together easily without tension.) The whole lid is converted into a sliding pedicle, raised, and all fibrous tissue is excised. Again, in order to be able to draw the lid over easily, a canthotomy is performed and a cantholysis.

One of the methods available is to split the medial aspect of the lid into its two layers, tarsoconjunctiva and skin-muscle. If there are any conjunctival tears, this is the time to fix them, while the wound is open and the conjunctiva is easily accessible. Then a double-armed suture is placed. It does not make any difference what kind you use. I like to use a heavy silk. It is passed through the edge of the tarsoconjunctiva, brought up behind the internal canthal ligament to emerge on top, the aim being to overcorrect somewhat. Then the skin-muscle is closed separately and enough sutures are inserted to make the closure good.

The final result is shown in figure 9b.

In closing I should like to say that I am sorry that in the few minutes allotted to me I have been able to present only a few scattered examples, but I think these have been enough to show that in the repair of conditions such as these, conditions which do not include the complicated reconstructions, there are some half dozen fundamental surgical technics which are important and which depend in turn on the inherent structural characteristics of the lids. That applies to the upper lid as well as to the lower lid. This does not mean, of course, that all lesions are alike and amenable to similar treatment, but it is remarkable how many do fall into similar categories, irrespective of the etiology, which can be repaired by the same classic fundamental procedures. These technics include, of course, the incision following the orbicularis, lid splitting, lid halving, the tarsorrhaphy, the borrowing of tissue from one lid for the other, and finally canthotomy and cantholysis.

UPPER LID REPAIR

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THE problems involved in repairing an upper eyelid may vary from the simple to the most complex. In origin the defects of an upper lid fall into three groups: (1) congenital defects, (2) traumatic defects and (3) defects caused by the removal of neoplasms. The procedures used in the repairs will vary with the size and position of the defect, but they will be similar in detail regardless of the cause.

Quoting from Fox's[3] book on Ophthalmic Plastic Surgery:

> The plethora of technics available to the surgeon is an interesting state of affairs but also a befuddling one. As a result, here as elsewhere each surgeon tends to use those technics which have been successful in his hands and which seem simplest to him. In short—there are no rules for reconstruction of the lids.

Nonetheless, certain generalizations can be made.

Primary repair is usually better than secondary repair after scar formation has ensued. The abundant blood supply of the eyelids usually makes primary repair possible, hence it is often the responsibility of the emergency surgeon to prevent deformity and preserve function.

Upper eyelid repair is usually more of a problem than is lower lid repair. Because of the motility of the upper lid, function in opening and closing the lid must be constantly borne in mind. This is especially true if the eye is present.

The eyelashes of the upper eyelid are more important cosmetically and functionally than are those of the lower eyelid. Supportive tarsal tissue in graft form is more difficult to obtain in adequate quantities for upper eyelid repair because if the 5 mm. wide lower tarsus is divided between donor and recipient lids, neither is very strong and either may become distorted.

There is some degree of compensation for these difficulties. Upper lid injuries and tumors are statistically rarer than those of the lower lid. There is often excess lax upper eyelid skin which may be used as a sliding or free graft. Excess mucous membrane is often obtainable from the superior fornix. Preservation of tear drainage is not a problem, at least in most cases. When the lower canaliculus is functioning normally, the upper need not be considered. Its preservation should be attempted if the lower one is not functioning. I have seen eyes in which only the upper canaliculus remained and where excess tearing was not a problem even under environmental or emotional stress.

The simpler forms of upper eyelid defect would be represented by lacerations of the lid without loss of tissue. Here careful identifying, handling and suturing of the parts will usually bring about a satisfactory result. If some tissue is missing, replacement may often be obtained from similar tissue in adjacent areas. If it appears that tension may elevate the eyelid and deform its margin, it is wise to do a tarsorrhaphy by one of the accepted methods. I have had some trouble in retaining uniformly good lid adhesions. Where any tension is anticipated, I prefer the method of Kiskadden.[8] Here a tantalum suture is

Presented at the Special Program on Plastic Surgery during the Fifty-Eighth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 11-16, 1953, Chicago, Ill.

placed through the denuded tarsal borders in a running fashion similar to a subcuticular skin closure. This method will usually hold even under marked tension. If a "peep-hole" is desired centrally, the suture is placed in the same manner but the margin is not denuded of epithelium where the opening is to be.

If the lid margin is involved in either an upper or a lower lid repair, the halving operation of Wheeler[12] is most useful in re-establishing a smooth margin without notching. This operation often becomes part of a more complex lid repair.

The figure of 8 suture of Minsky[10] is also useful in repairing lid margin defects. Here halving is omitted but support during healing is obtained by splinting the injured lid margin against the opposing intact lid margin.

The more complex repairs are those necessitated by the loss of tissue. Generally if not more than 5 or 6 mm. or one fourth of the upper lid is lost, the defect can be closed by a halving procedure. This figure must not be taken too literally, as much depends upon the age of the patient, the presence or lack of "tone" of the lid, and the degree of prominence of the globe, if it is present.

Another method of repairing a small defect is that of Fox,[5] where a tarsoconjunctival graft is fashioned from the lower lid and drawn up into the defect in the upper lid. The skin layer is supplied from adjacent skin by undermining. In this method the lids remain partially adherent for approximately two months. This method is similar to the McLean operation in principle. If an upper eyelid defect is wide but shallow, involving a height of only 2 or 3 mm., it can be repaired by this method. The McLean operation[9] is a reverse of the classical Hughes procedure for lower eyelid reconstruction. The tarsoconjunctival layer is supplied by sliding a part of the lower tarsus upward, the skin layer by sliding excess skin from the lid beneath the brow downward. Lashes are supplied by a free graft from the brow. The conditions where this operation is practical are few. It is rarely that we encounter so shallow an upper lid defect. As previously mentioned, the lower lid does not contain a wide enough tarsus to divide it between donor and recipient lids.

If an upper eyelid defect is more than 5 or 6 mm. but less than 10 or 11 mm. in width, particularly if it is laterally placed, it can be reconstructed by a sliding flap from the zygomatic and temporal area. This flap becomes the skin surface of the new lid. The conjunctival lining may be brought down from the excess in the superior fornix or it may be necessary to supply it in free graft form. As in the "halving" operation, the two layers should be closed by overlapping. Eyelashes are missing on at least a portion of the new upper eyelid.

If the upper lid defect involves approximately one half of the lid's width and if it involves the nasal or the temporal rather than the central portion, Hughes[6] has described a repair whereby a sliding tarsoconjunctival flap becomes the posterior layer. This is taken from the superior half of the remaining tarsus, mobilized with the attached conjunctiva of the fornix. The skin layer is replaced by a sliding flap or a free graft.

Callahan's[1] composite graft can be used to replace a defect in the center of the lid approximately one half of the lid's width. This method was described in 1951. Callahan reconstructed a lid which had been partially resected for removal of a malignant tumor. An 11 mm. coloboma was reduced to about half of this width by further resection of tarsus above the coloboma and by sutures. A full thickness free graft from the opposite upper lid was used

to fill the defect. This graft included conjunctiva and tarsus, orbicularis and skin, and lashes. The defect in the donor lid was closed by a halving procedure. The graft was sutured into the recipient lid by means of a halving closure at both of its edges. Here the result was most satisfactory. A tarsorrhaphy was not done. The lashes continued to grow in the graft. I do not know whether as good results have been obtained by others.

If the defect is larger than half the lid width, a total reconstruction must be done. Here the final lid would ideally contain skin on the outer surface, mucous membrane on the inner surface, supportive tissue such as tarsus between, eyelashes, and a positive connection with the levator to assure function. I think that often one or more of these factors may be omitted. In such a defect and to attain this end Hughes[7] has described a multiple-stage operation which to me seems almost formidable. The full thickness of the lower lid is first stretched upward to cover this defect. The skin layer and posterior layers of the lower lid are allowed to retract at two stages, a free graft of skin and one of tarsoconjunctiva being supplied at each of these stages. The levator muscle is attached to the new lid at another stage. Lashes are grafted from the brow. The new upper lid is detached from the lower lid to form the palpebral fissure at the final stage. Six hospitalizations and a year's time were required to complete this reconstruction.

I should like to describe a simplified method of total or partial lid reconstruction which was devised by Cutler during World War II. He and I[2] are reporting the procedure in a paper which will soon be published. It was briefly described in the last edition of Spaeth's[11] textbook on ocular surgery. I have used the method successfully in nine cases where the eye was present and believe that functional and presentable upper eyelids can be obtained even though supportive tissue and eyelashes are not supplied. Two stages only are required, the second being minor in scope.

The defect is first prepared by a wide excision of the tumor or a freshening of any epithelialized borders in traumatic cases. The entire tarsus and lid tissue well up into the fornix may be removed if necessary.

Next a horizontal incision is made through the full thickness of the lower lid just below the inferior border of the tarsus. This incision is made approximately as long as the horizontal aspect of the upper lid defect. From the two ends of this incision vertical cuts are made through the full thickness of the lower lid down to the lowest point in the inferior fornix. Through the vertical cuts the skin of the base of the flap is undermined down onto the cheek. This permits free mobilization of the flap.

The flap is now carried beneath the undisturbed margin of the lower lid which now forms a bridge. The flap is stretched upward behind this bridge and is sutured into the defect in the upper lid. This is done in two layers. The conjunctival closure is made with a running suture of 6-0 silk, the free ends of which are brought out through the skin and locked. The skin is closed with interrupted silk sutures. The conjunctiva and skin at the lower border of the bridge are joined with interrupted silk sutures. There seems to be adequate excess tissue in the lower fornix to fill a large upper lid defect. A strip of vaselin gauze is placed between the bridge and the flap. Small rolls of vaselin gauze are placed above and below the bridge to prevent undue pressure upon it. A pressure dressing is applied.

After a period of about two months the bridge is re-prepared by a knife incision along its lower border, thereby

separating the previously united skin and conjunctiva. The bridge is retracted downward and the new upper lid margin is marked on the skin of the flap. This line should be curved slightly downward from the canthi. With scissors the flap is divided through its thickness along the line. The conjunctival and skin edges at the new upper lid margin are now joined by interrupted sutures. The remainder of the flap retracts and is sutured in two layers to the lower border of the bridge.

No ill effects have been noted from failure of the upper lid to contain supportive tissue. The transplanted tissue seems to contain enough scar to be firm and to conform well to the contour of the cornea. It has not been found necessary to isolate the levator muscle and reattach it in any case. No cases of ptosis have resulted.

I have been impressed by my almost uniformly poor results in attempting to obtain eyelash grafts which looked like eyelashes. I have been heartened by the poor results of others. Quoting from Fox's book[4] again:

> Of all grafts, hair-bearing grafts are probably the least gratifying cosmetically, the results being something less than an unqualified success. In the case of lash grafts especially, the result is often an irregular array of sparse cilia growing in all directions. Attempts at making these grow in one direction so glibly mentioned in the literature rarely succeed in making them look natural. However, the attempt is always worthwhile and should be made, for occasionally one is agreeably surprised by a luxuriant growth which is almost normal in appearance.

Only with the last sentence would I disagree. I have ceased attempting lash grafts as I do not feel that my results justify the procedure. I am now substituting a line of tattoo pigment teased in a punctate fashion into the eyelash area with a hypodermic needle. A combination of insoluble pigments of brown, black and yellow of the type used now in corneal tattooing can usually be mixed to obtain a satisfactory color. The tendency is to make the line too dark. This can be prevented by using a minimum amount of black. Tattooing can easily be done as an office procedure. From a distance of three or four feet the appearance is not bad. From closer I believe it to be less of a blemish than most eyelash transplants.

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A SIMPLIFIED DACRYOCYSTORHINOSTOMY

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THE external method of dacryocystorhinostomy was first described by Toti in 1904; Blascoviczs, 1912; Kuhnt, 1914; Ohm, 1920; Mosher, 1921; Dupuy-Dutemps, and Bourguet, 1922; and has since been modified by many surgeons.[1,3,6-8] The use of the Stryker saw and the nasolacrimal catheter[4,5,10-12] has greatly simplified the operation and a description of this procedure is presented.

The Stryker saw has a rapid oscillating, rather than rotary, action so that the blade cuts bone only and will not damage soft tissue. This is a twofold advantage; the bone cut can be made accurately, and there is no possibility of damage to the surgeon's fingers. A special trephine for dacryocystorhinostomy has been designed to cut an adequate nasal bony window, 10 mm. in diameter for adults, 8 mm. in diameter for children.

Most obstructions in the lacrimal passages occur in the lower portion of the sac or in the bony nasolacrimal duct.[2,9] Obstruction at these points can be successfully handled with dacryocystorhinostomy in 95 per cent of the cases. The establishment of the exact site of the obstruction is therefore of prime importance since pathology of the upper end of the lacrimal passage cannot be cured by this method. The obstruction can be localized in the lower sac, or nasolacrimal duct, by the ready passage of a probe into the sac, and by the free regurgitation of water or mucopurulent material from the upper and lower puncta when pressure is made over the sac. If there is any doubt of the location of the obstruction, the fluoroscopic visualization of a lipiodol injection is conclusive.

Preliminary examination of the nose to rule out a badly deviated septum, chronic sinusitis, or nasal polyps, is important and such pathology should be corrected before a sac operation is undertaken.

OPERATION

The dacryocystorhinostomy is performed under general anesthesia; ether for young children 1 to 10 years of age, pentothal sodium for older children and adults. A postnasal pack may be used to prevent aspiration of blood or mucus, but it is emphasized that packing the nose in the region of the middle turbinate is not done, as this would interfere with the use of the Stryker saw and the placement of the nasolacrimal catheter. The contents of the sac are expressed and the sac irrigated before the skin of the operative area is prepared with aqueous zephiran (1:1,000).

Palpation of the orbital rim below the level of the medial canthal ligament clearly outlines the site of the incision and a few minims of adrenalin are injected into the subcutaneous tissue to reduce bleeding. The incision is made with a Bard-Parker knife, starting 3 mm. below the medial canthal ligament and directed along the orbital rim for 2 cm. Measurements as to the exact placement of this incision are valueless since there is much individual variation in facial structure, but the canthal liga-

From the Wilmer Ophthalmological Institute of the Johns Hopkins University and Hospital.
Presented as a motion picture at the Fifty-Eighth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 11-16, 1953, Chicago, Ill.

ment must not be cut, as this produces a cosmetic deformity and nothing is gained by exposure of the underlying area. A straight incision has been advocated by some operators as it causes less scar, but in this region the skin is very thin and soft, so that a slightly curved incision following the orbital rim falls in a skin fold and the resulting scar disappears in two to three months.

A Stevenson dacryospeculum gives adequate exposure and the pressure exerted by the speculum usually controls superficial bleeders. If a large vessel is cut, a tie with 00000 plain catgut may be necessary, but in most instances the operative field can be kept dry with a suction tip.

The periosteum over the anterior lacrimal crest is incised with the Bard-Parker knife and stripped laterally from the lacrimal fossa with a periosteum elevator. The periosteum and sac wall are adherent, so the sac is freed and may be retracted laterally exposing the anterior lacrimal crest and fossa. A probe should be passed through the lower canaliculus for absolute identification of the sac.

The special dacryotrephine of the Stryker saw is placed straddling the anterior crest and directed nasalward and slightly backward. In this position the trephined hole will include the anterior lacrimal crest and most of the lacrimal bone, but will not open the anterior ethmoidal cells. Should an ethmoid cell be entered, no harm is done, but adequate nasal drainage should be established. The bone is cut cleanly, and the plug is usually removed as the trephine blade is withdrawn. It is important to irrigate the blade with saline during the cutting to avoid burning the bone. Slight rotation of the saw speeds the cutting action. Bone wax gives adequate control of bone bleeding, should any be encountered.

The nasal mucous membrane, if of normal thickness, is incised in the usual H-type incision. If, on the other hand, there is marked mucous membrane hypertrophy, a U incision is made and half of the anterior flap excised.

A no. 10 or 12 ureteral catheter, with lacrimal probe as a stilet, is passed through the trephined hole into the nose and out the external nares for two inches. After withdrawal of the stilet, the upper end of the catheter is cut off, leaving approximately one centimeter projecting from the wound. A 0000 chromic catgut dacryosuture is placed through the wall of the catheter one centimeter from the cut end. A vertical incision is then made in the nasal side of the lacrimal sac with a Bard-Parker knife, exposing the end of the lacrimal probe which was earlier put in place for sac identification. The cut end of the catheter is then threaded on this probe and passed laterally and upward into the neck of the sac for one centimeter. At this point the suture inserted in the catheter has reached the incision in the sac wall, and a bite is taken in the anterior lip of the sac and through the subcutaneous tissue above to give firm anchorage to the catheter. Tension on the catheter at the external nares tamponades the sac against the nasal window, bringing sac and nasal mucous membranes in apposition.

The subcutaneous tissue is closed with two interrupted 000 plain catgut sutures, and the skin closed with subcuticular dermalon. When necessary, two or three additional interrupted cuticular sutures are used. The wound and eye are dressed with antibiotic ointment, and two eye pads are placed for light pressure. The catheter is fastened to the cheek with adhesive to give tension for twenty-four hours and then cut off even with the external nares.

The patient is discharged from the hospital in twenty-four hours and is advised to keep the eye pad in place for three days. On the fourth day, skin sutures are removed. The catheter is left in place for six to eight days and is removed by the patient at about that time. Irrigation of the lacrimal passage is not advised for three weeks. At that time it may be done to test the patency of the tract.

The use of the Stryker saw and catheter has so simplified the procedure of dacryocystorhinostomy that the operative success has exceeded that obtained by the older methods.

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PATIENT SIGNAL FOR AUDIOMETERS

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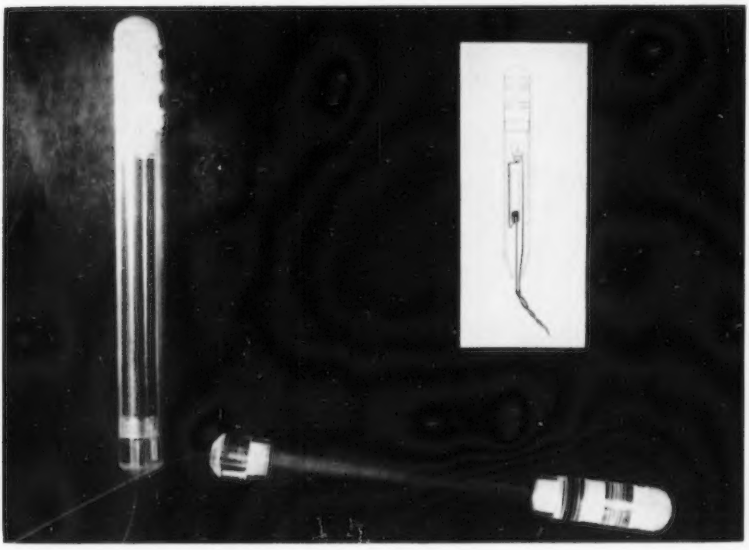

FIGURE 1.

THE ordinary pushbutton soon becomes fatiguing, especially for young children, and the response therefore becomes erratic. This lucite cylinder contains a mercury switch and a flashlight bulb in series with the audiometer lamp. On hearing the sound, the patient holds it vertical, lighting both his and the audiometer lamp. When the sound fades, he dips it to horizontal and both lights go out.

This light relieves fatigue and uncertainty and keeps a small child interested to the end of the test. It plugs into the audiometer in place of the pushbutton cord.

Presented as a *New Instrument* at the Fifty-Eighth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 11-16, 1953, Chicago, Ill.

A GONIOTOMY KNIFE

PAUL L. CUSICK, M.D.
DETROIT, MICH.

FIGURE 1.

THIS instrument is patterned after a cyclodialysis spatula with the addition of a wedge-shaped prominence, 3 mm. in length and 1 mm. in height on its forward aspect. The posterior aspect of this prominence has a concave cutting edge (fig. 1).

The instrument is for use in those eyes suffering from congenital glaucoma in which one would feel that a goniotomy would be effective. It is introduced through a cyclodialysis incision of a meridional type beginning just outside the limbus, usually in the superior temporal quadrant. After exposure of the choroid, the tip is introduced and being held tightly against the sclera, it is pushed forward around the angle of the anterior chamber, producing a cyclodialysis. When this has been accomplished, the blade is held tightly against the chamber angle and gradually drawn around the angle and brought out into the wound. If one desires, it can be reintroduced and the same procedure accomplished in the superior portion of the eye. Following the withdrawal of the instrument, the scleral wound is closed and saline introduced into the anterior chamber through a preformed channel.

We have found operations done with this instrument just as satisfactory as a goniotomy done in the usual manner. I feel that it has the advantage that no special skill is required and it eliminates the dangers of the conventional goniotomy: (1) loss of the anterior chamber while the knife is still across the pupillary space, and (2) inadvertent cutting of the iris with bleeding.

Presented as a *New Instrument* at the Fifty-Eighth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 11-16, 1953, Chicago, Ill.

A CORNEAL PUNCH

WILLIAM B. CLARK, M.D.
NEW ORLEANS, LA.

IN DOING a keratoplasty and using a trephine to remove the section of opaque cornea from the recipient eye, the anterior chamber is frequently lost before the trephine completely cuts out the corneal window and the incision has to be continued with corneal scissors. In completing the incision with scissors it is impossible not to leave overhanging tags of Descemet's membrane at the incision edge that may interfere with the seating of the graft. A punch was devised to take off these projections of Descemet's membrane without damaging the cornea or disturbing the contour of the incision previously made with the trephine (fig. 1). It is so designed that if the cornea is tented up with a sharp hook, the punch can be introduced into the anterior chamber and the tags of Descemet's membrane snipped off without injuring the iris or lens capsule, thus creating a more perfect bed for the graft to be seated in. You will recognize the handle of the punch as being very similar to Dr. Harvey Thorpe's nonmagnetic foreign body forceps and Dr. John McLean's capsulotomy scissors.

FIGURE 1.

The corneal punch is manufactuerd by the Storz Instrument Company, St. Louis, Mo.

Presented as a *New Instrument* at the Fifty-Eighth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 11-16, 1953, Chicago, Ill.

In Memoriam

Eugene Loring Bulson.....Fort Wayne, Indiana
April 13, 1954

Charles Rittenhouse Heed.....Haverford, Pennsylvania
May 23, 1954

Ossian Homer King.....Hot Springs, Arkansas
June 15, 1954

Chester Rudolph Mills.....Boston, Massachusetts
April 12, 1954

William Maurice Smit.....St. Louis, Missouri
March 14, 1954

Jerome Frank Strauss.....Chicago, Illinois
May 24, 1954

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THE CONTRIBUTIONS OF COLOR TELEVISION TO MEDICAL EDUCATION

When the American Academy of Ophthalmology and Otolaryngology convenes in New York for its annual meeting, attending members will view one of the most outstanding aids for medical teaching to be developed in recent years.

The teaching aid is medical color television, a medium that promises to exercise a considerable influence on the teaching methods of modern medical education. Happily, the subject matter of great interest to the Academy is also the subject matter best qualified to show why color television must be considered in any planning concerned with undergraduate and postgraduate medical instruction. During the three days of telecasting at the meeting, the Medical Color Television Unit of Smith, Kline & French Laboratories will show "live" operative procedures and clinical demonstrations that require extremely close-up views to be at all effective. Though such material does not ordinarily lend itself to demonstration for large audiences, it is particularly suited to the abilities of color television.

The distinctive difference between color television and all other methods of teaching lies in the uses of the color camera. Three such cameras are employed by the SKF Unit. Two are studio cameras, highly mobile and capable of great ease of movement through a widely diversified series of items. The third camera is like none other in existence. Built for SKF in 1949 by the Research and Development Division of the Columbia Broadcasting System, it was not only the first color television camera but the only mobile camera ever designed for the specific purpose of televising surgery. A movable camera head is mounted on one end of a seven-foot boom, which is in turn balanced on top a steel bar some six-feet in height, giving the camera the appearance of a huge letter "T."

Looking through the door of the operating room at the New York Eye and Ear Infirmary, a visiting physician would see the surgical camera suspended three to four feet over the operating table and immediately over the heads of the operating team. The team is in no way inconvenienced by the camera; in fact it is aided in a small way by the extra lamps brought in to provide the light necessary for a television picture

of high quality. The vantage point gained by the camera in this position over the operating table affords every physician in the audience a view of the operation equalled only by that of the operating surgeon. If the incision is small or the surgery extremely delicate, even this distance is further diminished by use of a more powerful lens.

In the Empire Room of the Waldorf-Astoria Hotel, receiving point for the telecasts, the view seen by the camera will be greatly magnified on a giant video screen measuring 4.5 by 6 feet. This screen was specially built for the SKF Television Unit by Columbia Broadcasting System and enables more than five hundred people to watch the colorcasts with ease and comfort. Because of the magnification brought the televised picture by the receiver, a procedure actually contained in an operative area of less than one square foot appears to the audience in a field as large as 16 or 18 square feet. Should an eye operation be televised at the Academy meeting, the eye as viewed on the screen will be approximately three feet high and four feet wide. While such a vivid picture would be no less than horrible to a lay audience, the challenging possibilities for medical education implicit in this same picture should be obvious to every physician.

Like most worth-while developments, medical color television was the product of both an adventurous imagination and an urgent need. It has achieved its present state of maturity, characterized by program production of near-professional stature, only by surviving an infancy of continuous experiment and innovation. Here again, the imagination and the need were instrumental in its growth.

The imagination was supplied by Smith, Kline & French Laboratories, a pharmaceutical firm that saw in color television an instrument of great potentialities for medical teaching. Acting on this conviction, SKF decided to bring the medium out of the research laboratories and into medical use as soon as possible. The subsequent contract with Columbia Broadcasting System was signed late in 1948. In June of 1949, at the Annual Meeting of the American Medical Association in Atlantic City, SKF produced and sponsored the first program of color television ever witnessed by the public. The program was an overwhelming success with 30,000 visits being paid to the telecasts during the five-day meeting.

An honest appraisal of this response would recognize the drawing power of color television's sheer novelty. But it also would be obliged to recognize that the majority of televiewing physicians envisioned the color medium as an answer to a long-standing problem of medical education, the problem of providing medical students with close-up views of operative procedures and clinical demonstrations without sacrificing accuracy or realism.

While medical color television visited postgraduate meetings all over the country—as well as presenting Canada and Europe with their first color programs —it became evident that SKF's faith in the promise of the medium had not been misplaced. The more color television was seen at medical meetings, the more medical meetings wanted it included in their teaching programs. Now entering its sixth year, the Unit has televised more than 1100 operations and clinics and has received over 30,000 doctor-visits in the course of presenting programs at 60 medical meetings.

At this first appearance of SKF medical color television in the scientific teaching activities of the American Academy of Ophthalmology and Otolaryngology, attending members can anticipate viewing the latest developments in medicine via a medium in keeping

with the best traditions of medical progress. Widespread utilization of color television in medical schools throughout the country will provide educators with a method that renders their teaching technics at once more flexible, more visually clear and, through reaching a larger audience, more effective.

THE XVII INTERNATIONAL CONGRESS OF OPHTHALMOLOGY

The range of subjects to be discussed at the International Congress covers the clinical field and touches on the areas of basic sciences that have clinical application. Of more than two hundred papers that have been accepted for the program, the great majority deal with diagnosis and treatment of eye diseases that are commonly seen in the office of the man in private practice. Glaucoma, uveitis, cataract, injuries, contagious diseases and visual disturbances will be discussed by leading ophthalmologists from throughout the world. Viewpoints are based on experience, and we are well aware that disease conditions are not identical in all continents.

The scientific sessions of the Congress will be divided as nearly as possible by subjects, so that those who are mostly interested in research may spend the full morning or afternoon on glaucoma, tonometry and tonography, or on clinical reports.

Afternoons may be spent in the Grand Ballroom viewing surgical clinics televised from the New York Eye and Ear Infirmary, or in the West Foyer viewing motion pictures—more than fifty of them exhibited for the first time in America. Technical exhibits, many from abroad, will be found in the Basildon and Jade Rooms, the Astor Gallery and the East Foyer on the same floor as the Grand Ballroom. Scientific exhibits will fill the two balconies of the Ballroom.

This Congress has been made possible by the contributions of ophthalmologists throughout the United States and Canada, who sustain the high standards of ophthalmic practice in these countries. Their voluntary contributions and registration fees are the sole source of financial support. This Congress is planned for them. Of the more than 7,000 doctors practicing ophthalmology in the United States whose names are on the mailing list, nearly ten per cent have registered in advance, and another fifteen per cent will register before the meeting opens. Unfortunately programs cannot be distributed before the opening of registration, the expense would be prohibitive, but every ophthalmologist who attends this Congress will be more than repaid, for here he will find more of interest to him and help in his every-day practice than he can possibly take in. Like a three-ring circus, there will be three simultaneous scientific sessions on several days, and all under one roof. Don't miss it.

WILLIAM L. BENEDICT, M.D.

INTERNATIONAL ASSOCIATION OF EYE, EAR, NOSE AND THROAT SOCIETY SECRETARIES

The International Association of Eye, Ear, Nose and Throat Society Secretaries provides a medium of exchange of information throughout the free world. Its advantages need hardly be extolled.

The virtues of cooperation with ophthalmic and otolaryngologic groups both from the standpoint of self-improvement and improvement of the profession as a whole are so obvious that they should be accepted wholeheartedly by all members of the profession. To secure these advantages has, up until now, presented somewhat of a problem.

It is true that most men in the United States know, or can readily find out, when any of the national or major local groups meet through the Directory of Ophthalmologic and Otolaryngologic Societies appearing in the May-June and November-December issues of the TRANSACTIONS. In some instances the programs of these groups are available a sufficient time prior to the meeting so that they may be made available to the profession beforehand.

Further, in the event that widespread publicity is desirable to the members of the two specialties, there are at least three directories which between them include the names of most men practicing ophthalmology or otolaryngology, or the combined specialty, whether or not they have been certified by either or both of the American Boards.

The point is, in this country communication is rapid and reliable. Furthermore, it can be said that the profession is aware of the necessity of taking advantage of this ease of communication. Failure to do so immediately stamps a man as being backward and not "keeping up."

It is hard for physicians in the United States to realize that in some parts of the world, at least, there are those who from a medical standpoint are quite isolated. What few publications they may receive may arrive months late.

If the International Association of Eye, Ear, Nose and Throat Society Secretaries were successful in establishing communication, then it would have accomplished a great deal. In this direction, if the programs of all major international, national and local ophthalmic and otolaryngologic groups could be published regularly, as has been started in Ophthalmologia Ibero-Americana, then it would be possible to know what is going on in other parts of the world, and to follow through with greater detail on any subject of particular interest.

Further programs could be worked out as they seem indicated, but the important thing is to make a start.

The question of communication is stressed because, in my experience, contacts, particularly with foreign colleagues, have broken down for this reason. I have met many enthusiastic, intelligent men who have had important ideas for improving the profession or relations within the profession. Unfortunately, some of these ideas have withered on the vine because when these men returned to their homes nothing further is ever heard from them.

I am sure the International Association of Eye, Ear, Nose and Throat Society Secretaries can be a great force for good if our difficulties can be overcome so that there may be a *free* exchange of

ideas throughout the Free World. This breaking down will not always be easy, but through personal contacts, visits and persistence it may be possible to achieve our purpose.

DANIEL SNYDACKER, M.D.

Acting Secretary-Treasurer
Pan-American Association
of Ophthalmology

MEETINGS OF FOREIGN SOCIETIES

ASSOCIACAO MEDICA DO INSTITUTO PENIDO BURNIER, CAMPINAS

Meetings: First and third Thursday of every month at Campinas, Sao Paulo, Brasil

First Secretary: Dr. Roberto Franco do Amaral, Campinas, Sao Paulo, Brasil

SOCIEDAD VENEZOLANA DE OFTALMOLOGIA

Time and Place: October 31, November 1 and 2, 1954 at Barquisimeto, Venezuela

Secretary: Dr. Rafael Cordero Moreno, Policlinica Barquisimeto, Barquisimeto, Venezuela

ALL-INDIA OPHTHALMOLOGICAL SOCIETY

Time and Place: February 16, 17, 18 and 19, 1955, Bombay, India

Secretaries: Dr. Sorab N. Cooper, Laud Mansion, Queen's Road, Bombay 4, India; Dr. V. K. Chitnis, Laud Mansion, Queen's Road, Bombay 4, India

THE CONTINUATION CRUISE TO BERMUDA

Meetings held on the "Queen of Bermuda" during the cruise are just as much a part of the Convention Program as the meetings held at the Waldorf. The general theme will be Allergy.

There are a few scattered rooms, good ones too, remaining in several categories at varying rates for the cruise.

On whatever deck, in whatever room classification, at whatever price you make reservations on the "Queen," you will find your fellow members there for neighbors.

If you hope to go, *wire* or *telephone* at once for full information to Leon V. Arnold, 33 Washington Square West, New York 11, N. Y. HURRY.

A QUARTERLY REPORT FROM THE COMMITTEE ON CONSERVATION OF HEARING

SUBCOMMITTEE ON NOISE IN INDUSTRY

DEAN M. LIERLE, M.D., *Chairman*
HOWARD P. HOUSE, M.D., *Subcommittee Chairman*

THE Subcommittee on Noise in Industry was organized in 1947 as an integral part of the Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology. Dr. W. E. Grove of Milwaukee, Wisconsin was chosen as the Subcommittee's first chairman. Dr. Grove's intense interest in the industrial noise problem particularly suited him to be the Subcommittee's first chairman.

In 1949 the interests of the Subcommittee demanded a full-time field representative to carry the work into industry itself. Dr. D. E. Wheeler was chosen to fill this position. Dr. Wheeler finished his graduate work for a Ph.D. in Audiology at the University of Iowa. He is admirably suited to the work of the Subcommitee because of his early training in acoustics at the Bell Telephone Laboratories.

Shortly after this Dr. Grove resigned because of ill health and Dr. Howard P. House of Los Angeles was chosen to replace him. Under Dr. House's active leadership, the work of the Subcommittee has continuously expanded and the Subcommittee has grown in membership in order to keep pace with the increased demands of industry.

At present the Subcommittee membership embodies most of the best talent in the field and covers a wide geographical area from New York to Los Angeles.

The work and progress of the Subcommittee may be summarized by a few extracts taken from the interim field reports.

REPORT NO. 1, MARCH 1949

This report records a study of 115 workers at the Rocky Mount Cotton Mill, Rocky Mount, North Carolina. The study was completed by the North Carolina State College and revealed that more than 60 per cent of the workers had a significant hearing loss. Factors such as age, length of exposure, preplacement tests, and noise analyses were not included. The Subcommittee's part in this early study was to survey existing data. These data had been obtained previously without consultation from the Subcommittee. Such a study served to demonstrate that many more and better controlled experiments were needed to supply the essential data.

REPORT NO. 2, OCTOBER 1949

Specific studies were begun at two large aircraft industries and a naval shipyard. Noise measurements, audiometry, the results of ear protection and the effect of short term exposure were recorded. The report indicates that there is a temporary threshold shift of hearing at the end of a working day which disappears after a night's rest (fig. 1). There is no indication, however, that a cumulative effect is not present over a period of years.

REPORTS 3, 4 AND 5, OCTOBER 1950 TO JUNE 1951

These reports describe the continuing of research on previous projects and include mention of some of the activities of Subcommittee members in bringing the noise problem to the attention of regional and national groups.

Talks were given in Los Angeles, Chicago, New York City, Atlantic City, and Atlanta. Papers were prepared and given at a national meeting of the American Hearing Society, at the first National Noise Abatement Symposium, and to members of the Aircraft Manufacturers' Safety Council. Members appeared and gave talks at a Joint Conference of the

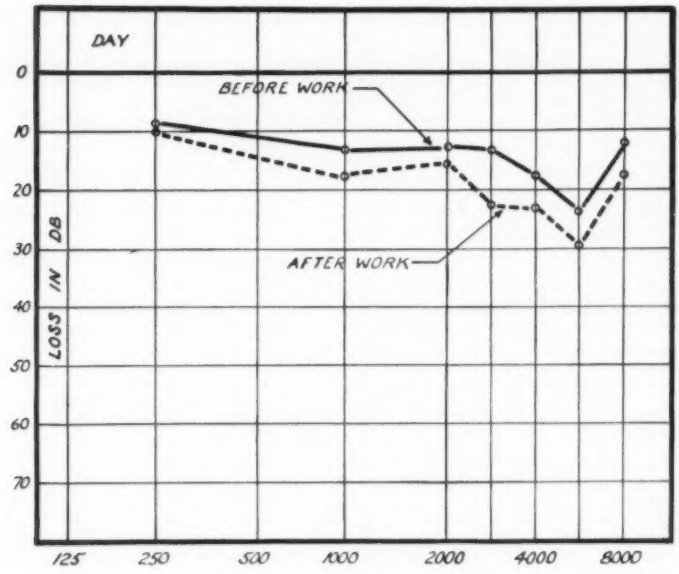


FIGURE 1.

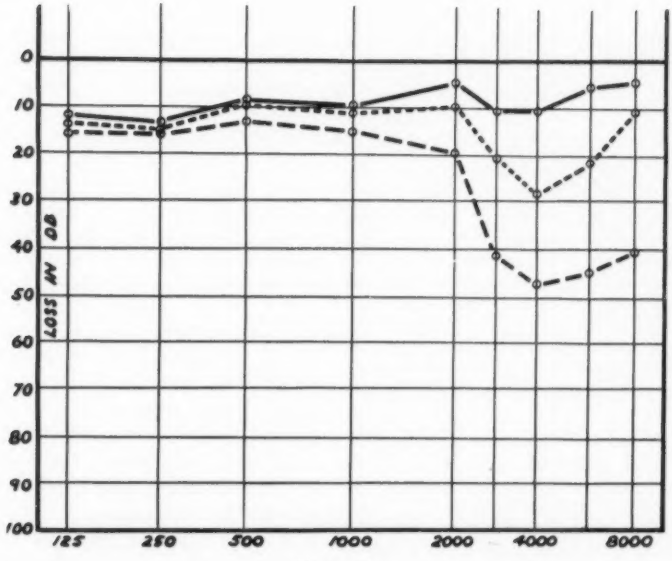


FIGURE 2.

Aircraft Industries Association and the Air Materiel Command, at two separate meetings of the Congress on Industrial Health, at the Congress of Industrial Physicans and Surgeons, and at the General Sessions of the American Medical Association, where the motion picture "Your Ear and Noise" and a teaching exhibit on noise and hearing loss were also a part of the program. In the Subcommittee's local area, talks were given before the County Medical Society and regional meetings of the American Hearing Society.

A 12-minute, 16 mm. color-sound motion picture entitled "Your Ear and Noise" was produced for distribution to interested groups. The demand for this film has been so great that it is necessary to schedule the showings more than three months in advance. Appropriate audiences in the following cities have seen the film:

Philadelphia	Chicago
Palo Alto	Denver
San Bernadino	Cleveland
Kansas City	La Crosse, Wis.
Omaha	St. Louis
Evanston	Cincinnati
Dayton	Flint, Mich.
Milwaukee	New York
Pullman, Wash.	Sacramento
Parkville, Mo.	Victoria, B. C.
Tulsa	State College, Pa.
Wenatchee, Wash.	New Haven
Detroit	Rock Island
Ann Arbor	Battle Creek, Mich.
Geneva, Switzerland	San Francisco
Columbus, Ohio	Oakland
Minneapolis	Montreal, Quebec
Richmond, Va.	

The interim report of June 1951 presents an audiometric study of 155 men who had been exposed to a "high noise level" for periods ranging from a few months to several years. Twenty-five per cent of these workers had developed considerable hearing loss, 45 per cent revealed normal hearing, 16 per cent sustained only a small amount of loss, and 14 per cent demonstrated an asymmetrical loss (fig. 2), the solid, small and large dashed lines represent 45 per cent, 16 per cent and 25 per cent respectively. The asymmetrical group is not shown.

Another study of 42 men working with drop hammers and power hammers indicated more hearing loss in the drop-hammer workers. This was rather puzzling since the power-hammer group demonstrated more temporary threshold shift; no doubt further research will enlighten us on this unexpected difference.

REPORT NO. 6, APRIL 1952

Report No. 6 presents progress made in several representative industries. An analysis of 824 preplacement audiograms revealed that 77 per cent (fig. 3) had normal hearing, that 10 per cent (fig. 4) had moderate losses, and 6 per cent (fig. 5) had severe hearing losses. Cross-hatching in each figure indicates the interquartile range. The remaining 7 per cent had asymmetrical losses, not shown.

A small sample of men (21) who had worked in 100 db. of flat spectrum noise for an average of 17 years, revealed an average loss of over 40 db. in the frequencies 3000, 4000, and 6000; none had a normal audiogram (fig. 6).

REPORT NO. 7, JANUARY, 1953

This report presents a summary of the research progress in fourteen different industrial locations.

One study furnished the first controlled data on the problem of permanency. Thirty-six men ordinarily exposed to 105 db. of flat spectrum noise were removed from this exposure for forty-five days because of a shut-down for equipment repair. Each of the thirty-six (36) men was tested at the beginning and end of the forty-five day period. The results indicated a reduction in threshold of about 3 to 4 db. over the audiometric range (fig. 7). Data of this type are invaluable in the study of permanency and the Subcommittee is anxious to do more studies of this kind.

Another survey of 2587 preplacement audiograms confirmed the findings shown in figures 3, 4 and 5. During 1953, the Subcommittee was asked to assist the U. S. Public Health Service to set up a noise study in the Federal Prison Industries. This proposal presented some unique opportunities in respect to experimental control, and the Subcommittee is happy to report that research is now progressing in four of the largest Federal prisons.

PRESENT ACTIVITIES OF THE SUBCOMMITTEE MEMBERS

Members of the Subcommittee have been actively engaged in giving talks in various parts of the North American Continent, including Canada, many of the States and Mexico. They have appeared before various local, national and international groups, including medical, safety engineering, industrial

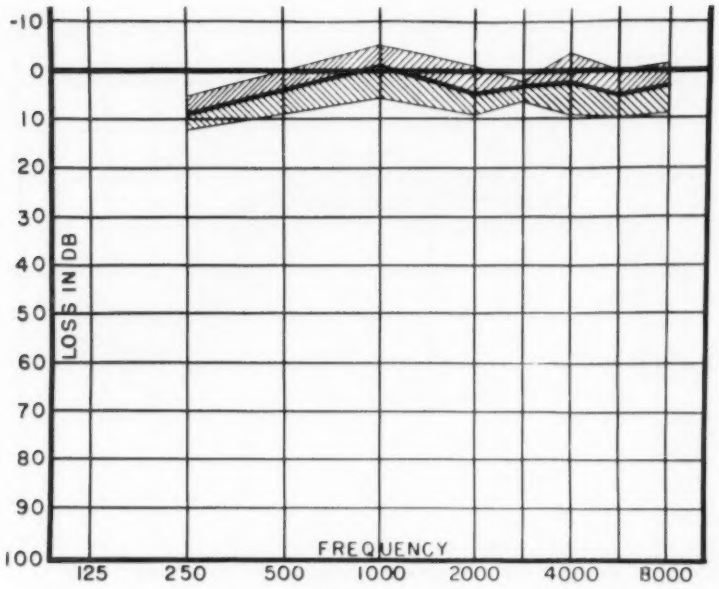


FIGURE 3.

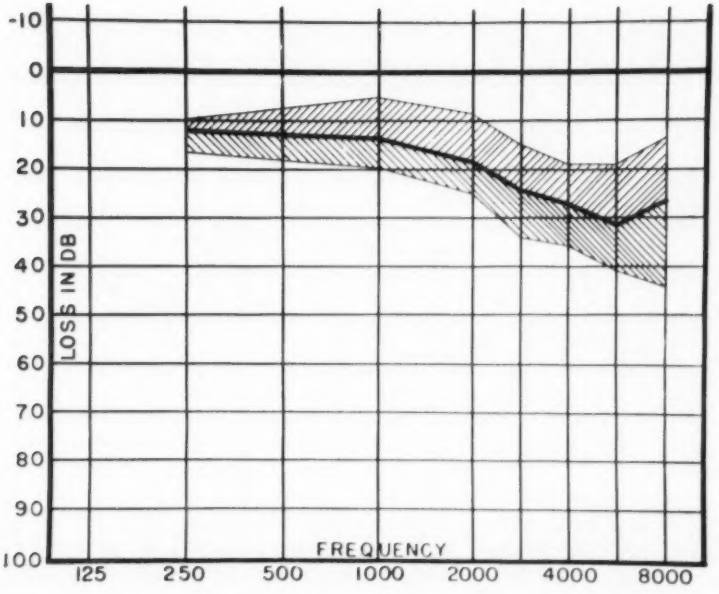


FIGURE 4.

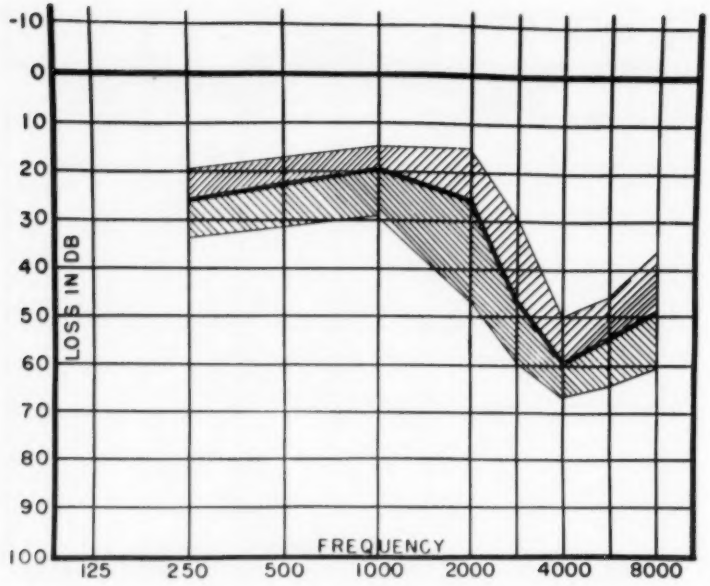


FIGURE 5.

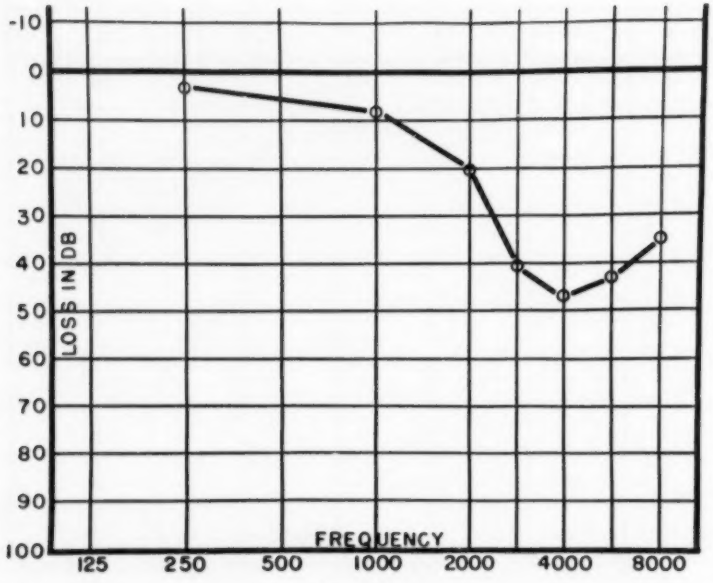


FIGURE 6.

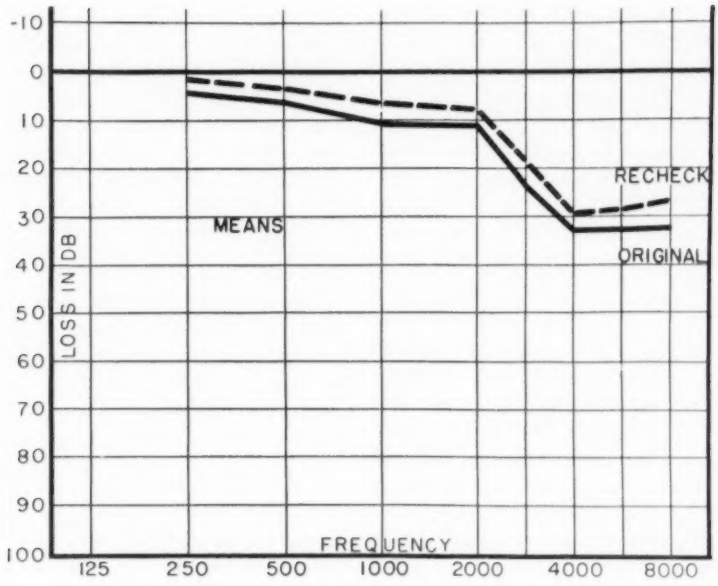


FIGURE 7.

hygiene, public health, accident and compensation commissioners, U. S. Senators, nurses, audiologists and lawyers.

All of the Subcommittee members have been actively serving in other committees interested in the noise problem, notably the following:

1. The Armed Forces-National Research Council Committee on Hearing and Bio-Acoustics, whose mission is to act as a consulting group primarily for the Armed Forces. Six members of the Subcommittee are serving as members of the Armed Forces-NRC Committee. Three are Council members and one of these is the Executive Secretary. Three subcommittee members are chairmen of active working groups of the Committee on Hearing and Bio-Acoustics. Four of them are joint authors on several specific reports written for the Armed Forces.

2. The Z 24-X-2, or Exploratory Committee on Bio-Acoustic and Psycho-Acoustic Criteria of the American Standards Association, whose mission was to explore the possibility of writing noise criteria, included six subcommittee members on its roster. The Z 24-X-2 committee recently released a report entitled "The Relations of Hearing Loss to Noise Exposure." It has been published and made available to the public by the American Standards Association.

3. The Committee of Consultants on Occupational Loss of Hearing of the State of New York included three members of the Subcommittee out of a total of five; one of these acted as the Chairman. The report of this committee has been available since shortly after the first of the year.

4. The "Committee of Eight," comprised of four members from the Council on Physical Medicine and Rehabilitation of the American Medical Association and four members from the Sub-

committee on Noise in Industry of the Committee on Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology, includes five members from the Subcommittee. The correlation of the American Medical Association and American Academy of Ophthalmology and Otolaryngology ensures complete medical cooperation in this nationally important problem.

The "Committee of Eight" is preparing a document presenting the principles involved in establishing rating scales for disability due to a hearing loss. Part one, which sets forth the principles, has been accepted by the American Medical Association and the American Academy of Ophthalmology and Otolaryngology. There remains only the validation of test material upon which to base the rating scale. The Subcommittee has undertaken the task of validation and hopes that in another year enough data will be available to establish the types of test material needed, its correlation with present test material, and the best testing technics.

Since the October 1953 meeting of the Committee on Conservation of Hearing, two nationally prominent men have accepted invitations to become associated with the Subcommittee on Noise in Industry. Hallowell Davis, M.D., well known for his work on the physiology of hearing at the Psycho-Acoustic Laboratories of Harvard University, now Director of Research at the Central Institute for the Deaf, and very actively engaged in research in noise and related problems, has accepted an invitation to become a member of the Subcommitee. As Dr. Davis is Executive Secretary of the Armed Forces-NRC Committee on Hearing and Bio-Acoustics, close cooperation between the two organizations will be assured.

A short while later, Professor Walter Rosenblith of the Massachusetts Institute of Technology accepted an appointment as Consultant to the Subcommittee on Noise in Industry. Prof. Rosenblith is well known for his work in psycho-acoustics, and recently, as Chairman of the Z 24-X-2 committee. The excellence of the report of the Z 24-X-2 Committee is largely due to the ability of Professor Rosenblith.

The Subcommittee on Noise in Industry is proud to announce the appointment of these two men and welcomes the wealth of knowledge and experience they bring.

ACTIVITIES OF THE FULL-TIME STAFF

In November 1953, Aram Glorig, M.D., began a year's leave of absence from his position as Technical Director of Research in Hearing of the Department of the Army to join the staff of the Subcommittee in Los Angeles.

A proposal was sent to the U. S. Air Force to establish and maintain a long-term centralized organization to handle large quantities of data from industry and the armed forces, and to set up methods of control to assure good data at the source.

A second proposal was forwarded to the U. S. Army Research and Development Board for the specific study of ear protection. This study will include principles of ear protection, design of ear protectors, field trials for efficiency and acceptability and development of measurement technics.

A third proposal was sent to the National Association of Mutual Casualty Companies requesting support for our research and aid in establishing an educational program for industry, industrial physicians, otolaryngologists, general medical groups, lawyers and audiometric technicians.

RESEARCH

I. *Temporary Threshold Shift (TTS)*

A study of the temporary threshold shift has recently been concluded on 31 men. These men, employed in an activated sludge plant, had previously been studied by regular audiometry (Field Report No. 7). Due to necessary experimental conditions imposed and to the organization of the plant's working schedule, a total of 10 days was required to complete the study.

The TTS is the elevation of threshold which occurs during the course of a working day in noise exposure. It may be measured by comparing the threshold taken during the day with the threshold taken before any noise exposure on that day. The first threshold on each man in this study was taken prior to any noise exposure on the test day and after a nonexposure period of not less than 48 hours. Subsequent thresholds were taken at two-hour intervals throughout the day. Each subsequent threshold measurement was begun within one minute after each man left his station. On each man during one test day, the thresholds were determined for a single frequency only. The frequency range studied included: 1000, 2000, 3000, 4000, 6000 and 8000 cycles. For six frequencies and 31 men, this procedure gave tests at each frequency on five or six men by random numbers. Each man served on two test days, being assigned a different frequency on the second test day.

Test order by subject was determined arbitrarily by the plant working schedule, which is organized on a crew basis with six to eight men per crew. By chance half the total group had normal hearing and half had impaired hearing. Thresholds were measured with a Békésy-type audiometer, modified and calibrated in the Subcommittee's laboratory to permit continuous testing at discrete frequencies.

The data have not yet been completely treated, but certain general findings have emerged as follows:

1. The total shift (from first to last test on a given day) is greater than that for any fractional part of the day.

2. The TTS for the normal group is larger than for the impaired group.

3. There are essentially two different noise environments in this plant.

4. The general order of shift for the impaired group was 10 db. or less at all frequencies; for the normal group, it was 10 db. or more, reaching a maximum of 18 db. at 6000 cycles.

II. The Director and Field Representative have consulted with a large aircraft plant on the problems of processing approximately 15,000 audiograms taken by this company during an 18-month period. The data were set up on IBM tabulating cards, and the results have been turned over to the Subcommittee for study. Further processing is necessary by the Subcommittee, because the company's objectives differed somewhat from the aims of the Subcommittee. A further requirement is a systematic study of the noise levels in this large plant. Some data have already been collected by the Subcommittee, and it is expected that the survey will be completed by the end of June 1954.

III. The study of personnel at one industrial plant brought out a well-defined difference between the losses of men and women. This difference is now being studied by matched comparisons of men and women in the same noise (or on the same job) for the same length of time, with age and medical history the same. The comparisons can be made from data already collected; the analysis is now in progress.

IV. A special group of brass foundry workmen has been given audiograms,

and a noise exposure history for each man has been compiled. These data will be processed when the band analyses of the noises are made available.

V. *The Problem of Permanency*

The Subcommittee has prepared and circulated a letter* to industry, asking for audiometric data useful in throwing some light on this difficult question. The conditions under which such audiograms might have been collected, or might be collected in the future, were outlined. The letter has thus far been sent to companies already cooperating with the Subcommittee. To date, one company has replied, suggesting that it may have some short-term data. These will have to be evaluated by direct inspection of the adequacy of the company audiometry.

* The following letter was sent to various companies in industry in which hearing problems were of importance.

As more information on industrial hearing loss is collected, one problem is seen to be increasingly important. In the litigation and settlement of claims, the question is always raised, "Is this hearing loss permanent?"

The question of permanency is usually raised whenever a man's hearing loss has been measured while he still has a noisy job or shortly after he has ceased working in a noisy place. Some people have assumed that hearing would be regained, if a man could be measured again after a long period of removal from noise. Some physicians believe they have clinical evidence for this assumption; other physicians believe that recovery, if any, would be slight. A recent study of all the known sources of audiometric data which might provide some evidence has shown that only a negligible amount of such data is available, none of it conclusive.

This question can only be settled by proper measurements on individuals whose circumstances fulfill the following requirements:

(1) An audiogram measured at some time during which the employee was holding a noisy job.
(2) An intervening period away from noise.
(3) A repeat audiogram on the same individual before any further noise exposure.

There are certain changes of status in industry which might be suited to those requirements:
(a) Employees about to retire, or having retired.
(b) Employees leaving for vacations.
(c) Employees being transferred out of noisy jobs.
(d) Employees being laid off, or temporarily transferred during a plant or operation shut-down.
(e) Employees absent for reasons of prolonged illness, operations or accidents.

In any of these conditions, however, the audiogram before change of status must be available.

If, in your company, there is opportunity to collect information under *any one* of the above circumstances, will you please let us know? We believe that, with proper planning, a great deal of very valuable information can be assembled as evidence bearing on the question of permanency.

Very truly yours,
D. E. Wheeler
For the Director

EDUCATION

I. *Short Course for Industrial Audiometric Technicians*

The Subcommittee has always been interested in the subject of audiometric training. At the Spring meeting of the Subcommittee in 1953, a pilot course was authorized for the Los Angeles area. Accordingly, information has been gathered which was needed to answer the several questions raised; such as, who should attend the course, how long should the curriculum be, should both day and night sessions be necessary, what should limit the course content and how might the problem of certification be met.

The indications, to date, are that the course be made available to the industrial nurse, that it be limited to approximately six hours of supervised instruction and that some certification be granted either through the Academy or the Subcommittee. Direct affiliation with university and college programs in the area would mean loss of flexibility during the formative stages.

To inform industry in the Los Angeles area of this audiometric course, the Subcommittee has been working closely with the Los Angeles City, County and State Health Departments; the American Industrial Nurses Association; the California Section of the American Nurses Association; and with representatives of one large insurance carrier.

II. *Distribution of Information*

The publications, "Guide for Conservation of Hearing in Industry" and "Guide for Physicians Concerned with

Hearing Conservation in Industrial Noise," have had a very extensive distribution. It would be hard to name a single type of industry that has not yet requested and received one or both of these Guides. The Subcommittee has mailed out approximately 1300 copies of the Guide for Industry, 850 copies of the Guide for Physicians and 1000 copies of the Glossary. Many hundreds of reprints of articles written by the Subcommittee members have been mailed in answer to requests from all parts of the country and all types of industry.

PROGRESS AND FUTURE PLANS

I. *Staff*

It is obvious that expansion will require more personnel. Arrangements have been made with a highly qualified acoustic physicist, Mr. William B. Snow,* to devote as much as half time to the Subcommittee. Mr. Snow spent more than ten years at the Bell Telephone Laboratories as a research physicist and is well acquainted with our specific problems.

The Subcommittee has also arranged for the services of Dr. William W. Grings,† Associate Professor of Psychology at the University of Southern California. Dr. Grings' knowledge of statistics, experimental design and electronic instrumentation makes him particularly suitable to the needs of the Subcommittee. Dr. Grings will act as consultant in statistical and experimental design as well as furnish the Subcommittee's IBM equipment, making it possible to process large volumes of data quickly and accurately.

Further additions to the staff will include another technician and possibly an educational coordinator to carry out the needs suggested in the fourth proposal.

II. *Facilities*

The facilities of the Subcommittee are contained within a large sub-basement with about 800 square feet of floor space. This large room is lined with fiberglass blocks on the ceiling and walls, with a cork tile floor. For a well-controlled testing environment, a small specially designed and mounted sound-treated room has been constructed within the large room. It is fitted with earphones and speakers for "free field" testing. External signal sources make it possible to use various test signals such as the Békésy continuous frequency au-

*William B. Snow
1011 Georgiana Avenue, Santa Monica, California
Age, 51

Educational Background

B.S., Stanford University, California
E.E., Stanford University, California

Research Training

Bell Telephone Laboratories, Inc., 1925-1941
Department of Transmission Research and Acoustical Research.
U. S. Navy Underwater Sound Laboratory, New London, Connecticut, 1941, Assistant Director 1943.
Kellex Corporation 1946, later Vitro Corporation of America, New York.
Director of Physical Research and Development, 1950.
Established private consulting practice 1952.
Member, Institute Electrical Engineering Association.
Member, Institute Radio Engineers.
Fellow, Acoustical Society of America.

†William W. Grings, Ph.D.
8020 Agnew Avenue, Los Angeles, California
Age, 35

Educational Background

B.A., Dubuque University, 1940.
M.A., University of Iowa, 1941.
Ph.D., University of Iowa, 1946.

Research Training

Presently, associate professor of psychology at the University of Southern California. Teaching areas: statistics and quantitative methods, experimental psychology and laboratory methodology.
Recently returned from two years leave of absence during which time directed an electronics personnel research program for the U. S. Navy. Currently a research consultant to the Office of Naval Research and the Bureau of Ships (NEL facility) of the Navy.
1942-1945 Aviation psychologist (research officer) in the Army Air Forces; 1947-1948 assistant professor, University of Denver.
Fellow, American Psychological Association.
Member, American Statistical Association and Psychometric Society.
Fellow, American Association for the Advancement of Science.
Publications in the areas of: statistics and experimental design, laboratory instrumentation, human learning, and personnel psychology.

FIGURE 8.

tomatic audiometer, recorded or "live voice" and various filtered noises. The Subcommittee has a General Radio Sound Level Meter and Octave Band Analyzer; a portable artificial ear for calibrating audiometers both in the laboratory and in the field; a screening audiometer; two tape recorders; an Allison filter; several speakers and related amplifiers, microphones and earphones; as well as the necessary office fixtures and equipment (figs. 8-11).

III. *Research*

Research activities will expand as the finances are increased, but the Subcommittee staff will continue to produce data as rapidly as possible within its present budget in the event increased finances are not forthcoming. The Subcommittee staff believes that unless there is a budget increase, their efforts will have to be confined to specific problems, localized to the immediate Los Angeles area and to the laboratory.

IV. *Education*

The Subcommittee staff believes that the educational aspects of the noise problem are very important but feels that any efforts to educate interested groups at present should be done largely by indirect methods. For example, the film "Your Ear and Noise" has proved so successful that the staff is making plans for another film to deal with industrial audiometry.

A scientific exhibit for showing at various national medical and allied meetings, such as the American Academy of Ophthalmology and Otolaryngology, the American Industrial Hygiene Association, the American Medical Association and the Industrial Med-

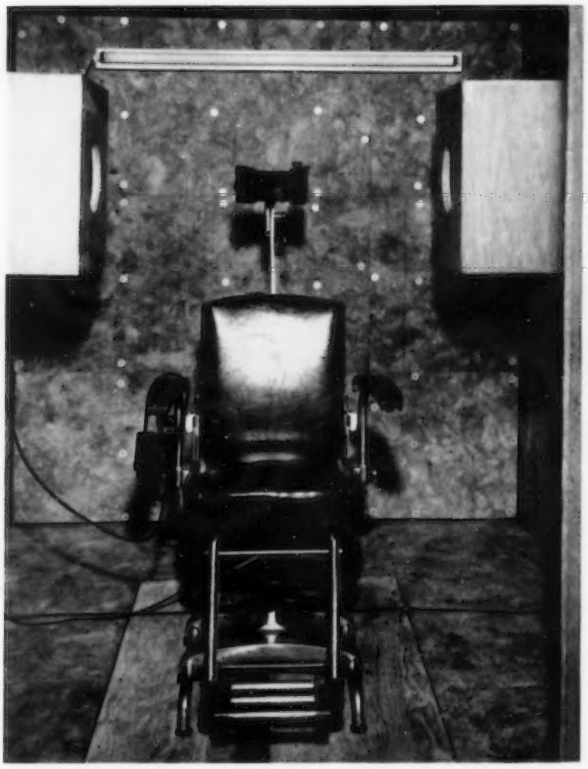


FIGURE 9.

ical Association, has been completed. The exhibit is self-contained and does not require attending personnel. It is presently scheduled for the September 1954 meeting of the American Academy of Ophthalmology and Otolaryngology and the June 1955 session of the American Medical Association.

The influence of the Subcommittee on the national problem may be exemplified by recent decisions in New York and Wisconsin.

In December of 1953 Mary Donlon, Chairman of the Workmen's Compensation Board of the State of New York, issued a pamphlet containing the recommendations of the Committee of Consultants on Occupational Loss of Hearing. These recommendations were formulated by a committee of five, chosen by Miss Donlon. Three of these members are active Subcommittee members and the substance of the recommendations closely resembles the conclusions presented in the "Guide for Conservation of Hearing in Industry" prepared by the Subcommittee on Noise in Industry in 1952.

Recently the Wisconsin courts handed down a decision which made noise-

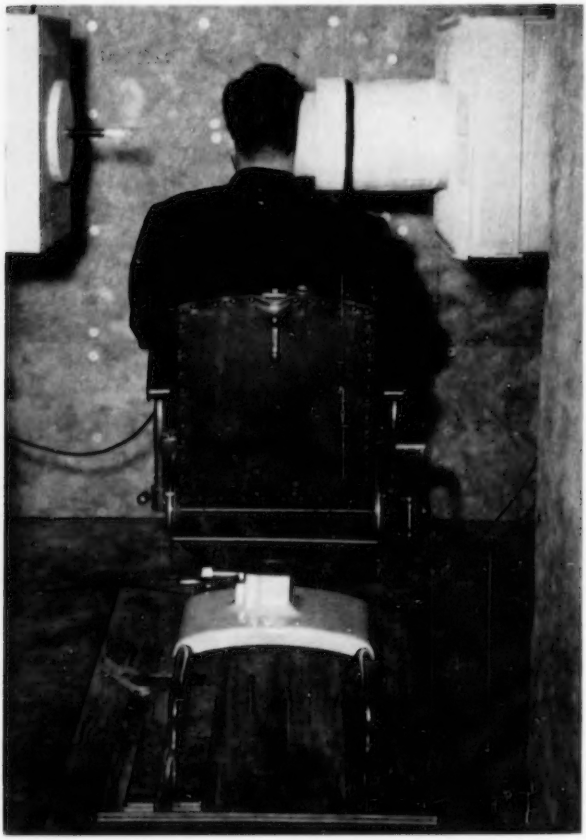
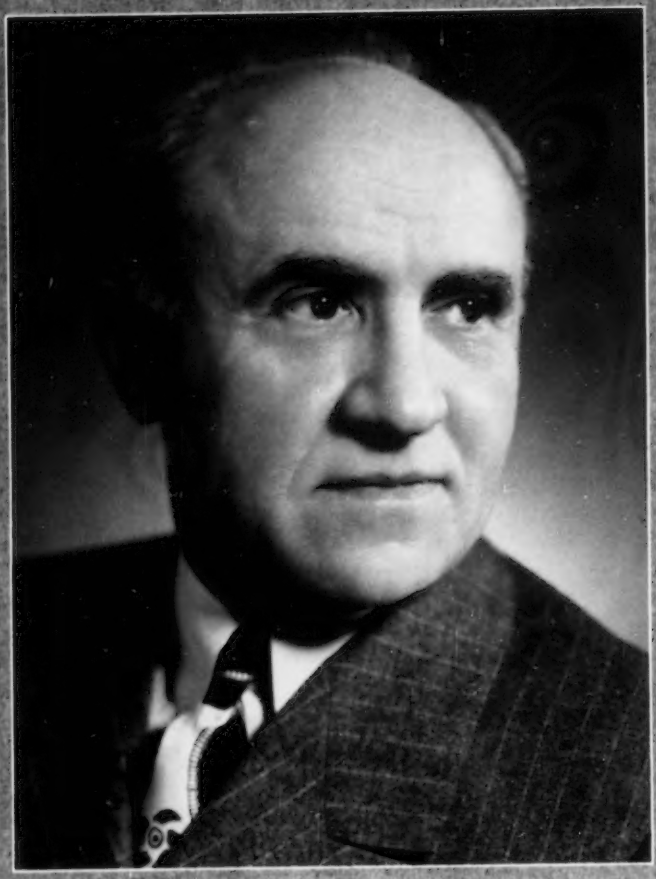


FIGURE 10.

induced hearing loss compensible. Shortly afterward the Wisconsin legislature passed an interim law which placed the payment of compensation for noise-induced hearing loss on a wage-loss basis. The law also stated that a date of injury must be specified. In order to obtain proper advice for the Wisconsin legislature in respect to changes in the present interim law at the next session, a five-man committee has been appointed to submit recommendations regarding the policies to be used in settling noise-induced hearing loss compensation cases. The recommendations of this committee are based upon the opinions and publications of the Subcommittee on Noise in Industry.

FIGURE 11.



President 1954

Walter H. Theobald

CHICAGO, ILLINOIS

Guest of Honor

WILLIAM JAMES McNALLY

Degrees: Bachelor of Arts, Dalhousie University, 1921; Doctor of Medicine and Master of Surgery, Dalhousie University, 1922; Master of Science, McGill University, 1925; Doctor of Science, McGill University, 1934; Doctor of Laws (LL.D. honoris causa), St. Francis Xavier University, 1951. Postgraduate Education: Royal Victoria Hospital; McGill University; Rijks University, Utrecht, Holland; University of Frankfurt, Germany. Diplomas and Fellowships: Diplomate in Otolaryngology of the Canadian, British and American Examining Boards; Fellow of the Royal College of Surgeons of Canada. Honors: The Dalby Memorial Prize, Royal Society of Medicine, London, 1938, awarded quinquennially for the best work in Otology; "Honor Section" of American Academy of Ophthalmology and Otolaryngology, 1944, in recognition of "teaching and investigative work on the labyrinth"; Honorary Membership in the Scottish Otological and Laryngological Society, Glasgow, 1949, in recognition for work done for Otolaryngology; Honorary Membership in the Royal Society of Medicine, Section of Otology, London, England, 1951, in recognition of distinguished services to science; The James E. Newcomb Award of the American Laryngological Association, 1952, for outstanding scientific contributions in the field of Otolaryngology. Affiliations: Professor and Chairman of the Department of Otolaryngology, McGill University; Otolaryngologist-in-Chief, Royal Victoria Hospital, Montreal; Consultant to other hospitals in Montreal; Membership in the leading Canadian, American and British medical societies.

FIFTY-NINTH ANNUAL MEETING

American Academy of Ophthalmology and Otolaryngology

SEPTEMBER 19 TO 24, 1954

WALDORF-ASTORIA HOTEL

New York, N. Y.

OFFICIAL NOTICES

Convention Call

Under the authority of the Constitution and with the approval of the Council, I herewith proclaim that the Fifty-Ninth Annual Session of the American Academy of Ophthalmology and Otolaryngology will convene at the Waldorf-Astoria Hotel, New York City, on Monday, September 20, 1954, at 9:30 a.m., and will continue through noon of Friday, September 24, 1954.

WALTER H. THEOBALD, M.D.
President

Attest:
WILLIAM L. BENEDICT, M.D.
Executive Secretary-Treasurer

Business Meeting

The Annual Business Meeting of the Academy will be held in the Jansen Suite on the Fourth Floor of the Waldorf-Astoria Hotel on Thursday, September 23, 1954, at 5:30 p.m.

The Order of Business:

1. Call to order
2. Report of Executive Secretary-Treasurer
3. Report of the Senior Member of the Council
4. Election of Fellows (See Candidate List, p. 624)
5. Election of Officers
6. Unfinished business
7. New business

All Fellows and candidates for election to Fellowship are urged to attend.

Council Meetings

The Council of the American Academy of Ophthalmology and Otolaryngology will convene at 9 o'clock, Saturday morning, September 18, 1954, in Room 4 NP on the fourth floor of the Waldorf-Astoria Hotel, New York City. There will also be a meeting of the Council on Wednesday, September 22, at 12:45 p.m. in Room 4 NP. Members desiring to be heard or to present business will confer with the Executive Secretary-Treasurer for appointments.

WALTER H. THEOBALD, M.D.
President

New Business

Proposals for new activities often are presented too late during the Academy session to afford time for deliberation. Therefore, new items requiring Council action should be presented in writing to the Executive Secretary-Treasurer early so that the Committee concerned may have an opportunity to study the matter prior to presentation to the Council.

Public Relations

Contributors to the scientific program are requested to send copies of their papers to the Secretary for Public Relations, Erling W. Hansen, M.D., 90 South Ninth St., Minneapolis 2, Minn., at the earliest possible moment.

Exhibits

The Scientific and Technical Exhibits will open at 9 o'clock Sunday morning, September 19. They will close at 4 o'clock Sunday for the President's Reception. From Monday through Friday they will open at 8:30 a.m. and close at 6:00 p.m. except that they will close Friday, September 24, at 12 o'clock.

Dues

Receipt card for 1954 dues is required for registration at the Academy meeting. Those who have not paid dues for 1954 are requested to remit to W. L. Benedict, M.D., Executive Secretary-Treasurer, 100 First Avenue Bldg., Rochester, Minn. In case of loss, a duplicate receipt card may be obtained upon request.

Registration

General registration will begin at 9 o'clock Sunday morning, September 19, on the second floor of the Waldorf-Astoria Hotel.

The regulation badge secured at the time of registration is essential for admittance to all activities. To facilitate registration the following sections will be provided:

Advance Orders: Members who have reserved instruction course tickets register here. Advance orders are held here for collection.

Members Without Advance Orders: Please present Receipt Card for 1954 dues. Dues outstanding may be paid at this section.

(Application blanks for Fellowship in the Academy may be obtained here.)

Instructors: All persons presenting instruction courses register here to secure special badge. Instructors who are not members of the Academy may register without fee.

Nonmembers: A registration fee of $5.00 is required of all guests (see below). The following exceptions are made:

1. Candidates for Academy Fellowship whose names appear in the July-August issue of the TRANSACTIONS.
2. Residents in training and registrants for the 1954-1955 Home Study Courses presenting guest cards obtained before the meeting (see next page).
3. Guests taking part in the Scientific Program or Exhibits.

Orthoptic Technicians: All orthoptic technicians register here. Members of the American Association of Orthoptic Technicians who have ordered tickets for Orthoptic Technicians Instruction Courses may pick them up here. Tickets will be on sale for those who have not yet purchased them.

Guests

Physicians who are not members are welcome to attend the meeting of the Academy as guests and to participate in all the activities. All guests, however, will be required to register and a fee of $5.00 will be charged.

In the past, a number of Fellows and registered guests of the Academy have indicated that they wish their *office nurses, technicians,* and *similar personnel* to attend parts of the Academy program or exhibits. Such individuals will be allowed to register upon presentation of a written request from a Fellow or if accompanied by a registered guest or Fellow. The guest fee of $5.00 will be required. An exception is made for all members of the American Association of Orthoptic Technicians, who may register without fee.

Residents and 1954-1955 Registrants for Home Study Courses

Men in training in accepted residencies, or those now completing a full academic year (nine months) in basic study, may register without fee upon presentation of a guest card obtained by written request of their Department Heads.

Registrants who have completed enrollment for the 1954-1955 Home Study Courses in Ophthalmology or Otolaryngology may also request a guest card entitling them to registration without fee.

Requests from Department Heads and Home Study Courses registrants for guest cards should be sent to W. L. Benedict, M.D., 100 First Avenue Bldg., Rochester, Minn., by September 1.

Instruction Course Tickets

The tickets for courses in ophthalmology and the tickets for courses in otolaryngology and maxillofacial surgery will be sold at separate desks on the eighth floor of the headquarters hotel. The office for Instruction Courses is Room 805. The bulletin boards behind each desk will indicate what tickets are available. Please consult these boards in making your selections. Bear in mind that individual courses are for one hour only; continuous courses run for two or more hours. Price of tickets is $2.00 per hour.

It is necessary to register and to be wearing regulation badge in order to purchase instruction course tickets.

Ladies' Registration

The wives of members and guests are urged to register at the Ladies' Headquarters in the Pillement Suite on the Fourth Floor. Registration will open at 9 o'clock, Sunday morning, September 19, and will close at noon on Thursday, September 23.

Available Supplies

Collected abstracts of instruction courses, manuals and monographs may be purchased at the supply counter in Registration Headquarters. Guests may place subscriptions to the bimonthly issues of the TRANSACTIONS here, and orders will be taken for the 1954 Bound Volume.

Dinner Tickets

Tickets for Alumni Dinners will be on sale at the Registration Headquarters until 2 o'clock Monday afternoon.

Constitutional Changes in Fellowship Status

Life Fellows. Fellows who have paid dues continuously for thirty years will automatically become Life Fellows. They shall not be required to pay any fees or dues or assessments and shall enjoy all the privileges of Active Fellows.

Senior Fellows. Fellows who have paid dues continuously for twenty-five years will be termed Senior Fellows and their dues will be one-half of the dues of Junior Fellows.

ARTICLE V, SECTION 6, BY-LAWS

Life Fellows — 1954

Asbury, Mary Knight .....Cincinnati, Ohio
Atkinson, Walter Sydney ..Watertown, N. Y.
Beyer, Arthur George .....Cincinnati, Ohio
Buchanan, Norman Duncan, Peterborough, Ont., Can.
Burdick, Austin F. .....Lansing, Mich.
Chase, Sumner B. .....Fort Dodge, Iowa
Costen, James B. .....St. Louis, Mo.
Fisher, James A. .....Asbury Park, N. J.
Fowler, Earle B. .....Chicago, Ill.
Fraser, Robert Howard, Battle Creek, Mich.
Friedenwald, Jonas Stein ....Baltimore, Md.
Furstenberg, Albert Carl ..Ann Arbor, Mich.
Gatewood, Emmette Trible ....Richmond, Va.
Gillette, David Filsinger ....Syracuse, N. Y.
Hofmann, William Peter ....Davenport, Iowa
Hughes, Lee Westlake .....Newark, N. J.
Jones, Leonard Warburton, Rochester, N. Y.
Knapp, Frank Norris .....Duluth, Minn.
Lederer, Francis Loeffler .....Chicago, Ill.
Lifschutz, Jacob .....Beverly Hills, Calif.
Lloyd, Ralph Irving .....Brooklyn, N. Y.
Lowry, Blackburn W. .....Tampa, Fla.
McNichols, William A. .....Dixon, Ill.
Messier, A. Eugene .....Worcester, Mass.
Newton, Frank Hawley .....Dallas, Texas
Noonan, William James .....Chicago, Ill.
Payne, Richard Johnson .....St. Louis, Mo.
Richardson, Shaler Arnold, Jacksonville, Fla.
Schlivek, Kaufman .....New York, N. Y.
Snell, Albert C. .....Rochester, N. Y.
Stark, Jesse B. .....New York, N. Y.
Whelan, George L. .....Philadelphia, Pa.

Senior Fellows — 1954

Baldwin, Herschel E. .....Danville, Ill.
Bassen, Edward J. .....New York, N. Y.
Baum, William Wells .....Salem, Ore.
Beals, C. Wearne .....DuBois, Pa.
Bender, Henry A. .....Waterloo, Iowa
Bender, Morris Samuel ....Jamaica, N. Y.
Bernheimer, L. Benno .....Chicago, Ill.
Boemer, Lilburn Casper .....St. Louis, Mo.
Bruce, Gordon Murphy ....New York, N. Y.
Carpenter, Chapin .....Philadelphia, Pa.
Carter, Earl Dwight .....Wichita, Kan.
Chandler, Gail Ellsworth .....Miami, Fla.
Cohoe, Don A. .....Detroit, Mich.
Conway, John Moore .....Pittsburgh, Pa.
Cortopassi, Andre John .....Saginaw, Mich.
Corya, Harold W.....Quogue, L. I., N. Y.
Cummings, George Otis ....Portland, Maine
Cutino, Rodolph M. .....Brooklyn, N. Y.
Davies, Harry Francis ....Washington, D. C.
Day, Kenneth Mosier .....Pittsburgh, Pa.
Depping, Charles William ..New York, N. Y.
Dobbs, Otto Ross .....Greencastle, Ind.
Fackler, Charles Lewis .....York, Pa.
Fineberg, Maxwell .....St. Louis, Mo.
Gabriel, Carson King .....Quincy, Ill.
Gilliland, Oliver Sheley ....Kansas City, Mo.
Gouterman, Joseph I. .....Philadelphia, Pa.
Grant, Hendrie Walter .....St. Paul, Minn.
Greenwood, Glenn Jackson, Los Angeles, Calif.
Griffith, Harold M. .....Johnstown, Pa.
Hahn, William Horace .....Newark, N. J.
Hardie, George Christopher ..Jackson, Mich.
Harris, Edward Williams ...Columbus, Ohio
Heetderks, Dewey Ralph, Grand Rapids, Mich.
Henderson, Lawrence Edward, Watertown, N. Y.
Hickey, Harold Lowry .....Denver, Colo.
Hicks, William Joseph ....Middletown, N. Y.
Hodge, George Esplin, Montreal, Que., Can.
Hopkins, Guy Huskinson .....Pueblo, Colo.
Hunter, James Finlay ....Madisonville, Ky.
Hunter, Robert John .....Philadelphia, Pa.
Joynt, Martin John .....LeMars, Iowa
Judd, John Hewitt .....Omaha, Neb.
Keiper, George Frederick .....Visalia, Calif.
Kline, Oram R. .....Camden, N. J.
Knauer, William Jerome ....Jacksonville, Fla.
Kuhn, Hedwig Stieglitz ....Hammond, Ind.
Laff, Herman I. .....Denver, Colo.
Landis, James Everhart .....Reading, Pa.
Leavenworth, Richard Ormond ....St. Paul, Minn.
Leech, Vernon Mayne .....Chicago, Ill.
Lingeman, Byron Newton, Crawfordsville, Ind.
Livingston, George Shaynin ....Chicago, Ill.
Lukens, John Alfred .....Toledo, Ohio
Lurie, Moses H. .....Boston, Mass.
Macdonald, Joseph C., Oklahoma City, Okla.
Malone, Frank B. .....Lubbock, Texas
Marsden, Wilson Conrad ..Wilkes-Barre, Pa.
Martin, William Owen, Jr. ....Atlanta, Ga.
McCormick, Thomas Francis, Milwaukee, Wis.
McCoy, Leslie Layton .....Seattle, Wash.
McGillicuddy, Oliver B. .....Lansing, Mich.
McHenry, Lawrence Chester, Oklahoma City, Okla.
Means, Russel Garrett .....Columbus, Ohio
Merica, Forrest Wayne .....Lakewood, Ohio
Moore, Paul Guthrie .....Cleveland, Ohio
Moore, Paul McNary, Jr. ..Cleveland, Ohio
Murphy, Albert Bernard ....Everett, Wash.
Nugent, Oscar Benton .....Chicago, Ill.
O'Brien, Gerald Richard ....Brooklyn, N. Y.
Oppegaard, Chester Leonard, Crookston, Minn.
Pace, Errett .....Paducah, Ky.
Paul, William C. .....Santa Ana, Calif.
Payne, Virgil LeRoy .....Pine Bluff, Ark.
Persky, Abram H. .....Philadelphia, Pa.
Pope, Ernest Clark .....Birmingham, Ala.

Potter, Willis A. .....Detroit, Mich.
Preston, Henry Grant ....Harrisonburg, Va.
Reed, William Wallace .....Topeka, Kan.
Reid, Horace Withers .....Cincinnati, Ohio
Rigg, James Paul .....Grand Junction, Colo.
Robison, James Thomas .....Austin, Texas
Rubenstein, Asher Harry ....Syracuse, N. Y.
Schluer, Elmer Pfingsten ....St. Louis, Mo.
Shapiro, Sherman Lawrence ....Chicago, Ill.
Simons, Neal Samuel .....Whitehall, Wis.
Simpson, Morris Bigelow ..Kansas City, Mo.
Sloane, Henry Oscar .....Philadelphia, Pa.
Smith, William Leroy ..Salt Lake City, Utah
Stanley, Court Roger ...Worthington, Minn.
Stonecypher, David Daniel ..Nebraska City, Neb.
Theobald, Walter Henry .....Chicago, Ill.
Tillotson, Rulon Squires ..Sacramento, Calif.
Tomb, Everett Hale ....Framingham, Mass.
Toot, Joseph Frederick .....Canton, Ohio
Watkins, Harold R. .....Bloomington, Ill.
Webster, Franklin Raymond, Syracuse, N. Y.
Weeth, Charles Reed .....Brooklyn, N. Y.
Weidlein, Ivan Ford .....Cleveland, Ohio
Wenner, Waldemar Thomas .....St. Cloud, Minn.
Wetzel, John Otto ....Fort Lauderdale, Fla.
Wexler, David .....New York, N. Y.
Whitney, Elmer Lemuel .....Detroit, Mich.
Wilkinson, Arthur Paul .....Detroit, Mich.

CONVENTION ACTIVITIES

PRESIDENT'S RECEPTION

Grand Ballroom
Sunday, 4:30 p.m.

President Walter H. Theobald and Mrs. Theobald invite all members and guests of the Academy to a reception honoring Dr. and Mrs. William James McNally and Dr. and Mrs. Francis Heed Adler on Sunday, September 19, at 4:30 p.m. in the Grand Ballroom.

WHERRY MEMORIAL LECTURE

Sponsored by the Wherry Memorial Fund

The 1954 Wherry Memorial Lecture will be delivered at the scientific session of the Section on Otolaryngology, Tuesday afternoon, September 21, by Dr. Moses H. Lurie, Assistant Professor of Otology at the Harvard Medical School. The subject of his address will be "The Ototoxicity of Drugs in Animals."

JACKSON MEMORIAL LECTURE

Sponsored by the Ophthalmic Publishing Co.

Dr. Algernon B. Reese, Clinical Professor of Ophthalmology at the College of Physicians and Surgeons, Columbia University, will deliver the Jackson Memorial Lecture at the scientific session of the Section on Ophthalmology, Tuesday morning, September 21. The subject of his paper will be "Persistent Hyperplastic Primary Vitreous."

EVENING OF DIVERSION

Grand Ballroom
Monday, 9:00 p.m.

Entertainment, refreshments and music for dancing. Complimentary.

FACULTY LUNCHEON

Thursday, 12:30 p.m.

President Walter H. Theobald will be host to all those presenting scientific papers, motion pictures, scientific exhibits and courses of instruction.

LADIES' PROGRAM

Wives and guests of members of the Academy are invited to participate in the special program of events planned for their pleasure and convenience by the Academy in cooperation with the New York Convention and Visitors Bureau and Glass Dome Tours, Inc.

Beverages and cakes will be served daily from 9:00 to 11:30 a.m. and from 3:00 to 5:00 p.m. in the Ladies' Hospitality Suite.

Information personnel will be in attendance in the Hospitality Suite to give suggestions and advice regarding restaurants, shopping, theaters, concerts, and places of interest in the city of New York.

Glass Dome Tours, Inc., will maintain a desk where they will help plan tours to the United Nations, Rockefeller Center, N.B.C., Empire State building, upper and lower New York, Latin Quarter, and night clubs.

Planned activities include also a fashion show and luncheon in the Grand Ballroom of the Plaza Hotel, arranged and sponsored by the Woman's Auxiliary of the Brooklyn Eye and Ear Hospital for the benefit of the hospital. Tickets will be on sale in the Hospitality Suite.

ALUMNI DINNERS

The following alumni groups will hold dinners on Monday evening, September 20, 1954, at 6:30 p.m., unless time is otherwise indicated: (A complete listing including place of dinner and address of the secretary for each group will appear in the Pocket Program issued at the Academy meeting.)

Boston City Hospital Aural & Ophthalmic Society

Brooklyn Eye and Ear Alumni Association

Dr. J. Mackenzie Brown Alumni

Cook County Hospital Alumni

Emory University Alumni (Former Staff Members)—Cocktails and dinner, 6:00 p.m.

Henry Ford Hospital Alumni

Gill Memorial Eye, Ear and Throat Hospital Alumni—Annual Spring Graduate Course

Dr. John F. Gipner Alumni

Harper Hospital Alumni

Illinois Eye and Ear Infirmary Alumni

Iowa Eye, Ear, Nose and Throat Alumni—Cocktails and dinner, 6:00 p.m.

Jefferson Hospital Otolaryngological Group Alumni

Johns Hopkins Hospital—Wilmer Institute and Otolaryngology Alumni

Dr. David H. Jones Alumni

Dr. John R. Lindsay Alumni

Massachusetts Eye and Ear Infirmary Alumni—Ophthalmology

Massachusetts Eye and Ear Infirmary and Harvard Medical School Alumni—Otolaryngology

Mount Sinai Hospital of New York Alumni

New Orleans E.E.N.T. Hospital—Charity Hospital Alumni

New York University, New York Post Graduate Medical School and Bellevue Hospital Alumni

Otolaryngologic Alumni Association of the University of Illinois and the Illinois Eye and Ear Infirmary

Walter R. Parker-Roy Bishop Canfield Alumni

University of Pennsylvania and Wills Hospital Alumni—Ophthalmology

University of Pennsyvania Alumni—Otolaryngology

Presbyterian Hospital (New York) Ear, Nose and Throat Alumni Group

St. Luke's Hospital Alumni—Cocktails and dinner, 6:00 p.m.

Washington University Alumni—Otolaryngology

Wilmer Institute Alumni—See Johns Hopkins Hospital

Wisconsin Alumni Group

CANDIDATES--1954

The following candidates have qualified for Fellowship in the American Academy of Ophthalmology and Otolaryngology and will be voted upon at the Annual Business Meeting, Thursday, September 23, 1954. Objections to the election of a candidate must be filed with the Executive Secretary-Treasurer previous to Saturday, September 18, 1954.

CANDIDATES CERTIFICATED BY BOARDS

Ophthalmology (OP)
Otolaryngology (ALR)
Plastic Surgery (PlS)

Adam, Stewart Inglis, 2701 Far Hills Ave., Dayton 9, Ohio, ALR

Addington, Charles H., 675 Delaware Ave., Buffalo 2, N. Y., OP

Adler, Hyman Henry, 134 Middle Neck Rd., Great Neck, N. Y., ALR

Albaugh, Kathryn Louise, 727 W. Seventh St., Los Angeles 17, Calif., OP

Alexander, Stephen John, 229 E. Main St., Crawfordsville, Ind., OP

Alo, Joseph, 2615 Grand Concourse, New York 68, N. Y., ALR

Amstutz, Hubert M., 110 E. Main St., Lancaster, Ohio, ALR

Armstrong, Hiram Edward, 1114 N. Second St., Harrisburg, Pa., ALR

Arnoux, Mourad Naef, 104 Bergen St., Brooklyn 1, N. Y., ALR

Arteaga, Oliver, 152 Forrest Ave., Atlanta, Ga., OP

Atkinson, Robert Henry, Suite 205, Medical Arts Bldg., Hot Springs, Ark., ALR

Atkinson, Thomas Ernest, Jr. (Lt. Comdr.), U. S. Naval Hospital, Pensacola, Fla., OP

Bailey, Howard Ashley, Jr., 608 Donaghey Bldg., Little Rock, Ark., ALR

Baltzell, William Hewson, 2 E. Chestnut Hill Ave., Philadelphia 18, Pa., ALR

Barney, Bernard B., 217 S. Union St., Burlington, Vt., ALR

Barranco, Anthony Joseph, 111 E. 61st St., New York 21, N. Y., OP

Barton, Lewis W., 180 Washington Ave., Albany, N. Y., ALR

Baum, Seymour James (Lt. jg.), 1546 Bloomington, Bremerton, Wash., ALR

Baxter, James Douglas, 1509 Sherbrooke St. West, Montreal, Que., Canada, ALR

Becker, Bernard, 640 S. Kingshighway Blvd., St. Louis 10, Mo., OP

Belmont, Owen, 2731 N. Fifth St., Philadelphia 33, Pa., OP

Berlove, Ira Jay, 944 Park Ave., New York 28, N. Y., ALR

Berman, Walter Elliott, 11467 Thurston Circle, Los Angeles 49, Calif., ALR

Berry, Robert Zinn, 211 Medical Arts Bldg., Baltimore 1, Md., ALR

Bierman, Edward Otto, 5885 San Vicente Blvd., Los Angeles 19, Calif., OP

Blair, Edwin, 441 Ocean Ave., Brooklyn 26, N. Y., OP

Blazar, Howard A., 520 Beacon St., Boston 15, Mass., OP

Blood, Horace S., 5 S. State St., Concord, N. H., ALR

Boice, Robert Roland, 113 S. Kentucky Ave., Roswell, N. M., ALR

Bonadia, Calogero, 1822 70th St., Brooklyn 4, N. Y., OP

Bono, John, 125 N. McKean St., Kittanning, Pa., ALR

Boozan, Charles W., 33 DeWitt Rd., Elizabeth 3, N. J., OP

Brackett, J. Gordon, 1019 Doctors Bldg., Atlanta 3, Ga., ALR

Bradburn, Ian Muir, 7926 Ivanhoe Ave., La Jolla, Calif., ALR

Brannon, Wade Hampton, 614 Commercial Bank Bldg., Anniston, Ala., ALR

Brockman, Seymour Joseph, 2007 Wilshire Blvd., Los Angeles 57, Calif., ALR

Brodhead, Richard H., 502 Third St., Wausau, Wis., ALR

Buckley, Eugene Thomas, 131 Fulton Ave., Hempstead, L. I., N. Y., OP

Burstein, Frank, 1115 S. Broad St., Newark 5, N. J., OP

Caccamise, William Charles, 76 S. Fitzhugh St., Rochester 8, N. Y., OP

Campbell, Bernard Edward, 1808 High St., Denver 6, Colo., OP

Campbell, Jack Swope, 611 Michigan Nat'l Bank Bldg., Battle Creek, Mich., ALR

Caparas, Edgardo Tengco, Moncada, Tarlac, Phillipines, OP

Carson, Willis Thomas, 1200-D N. Texas Ave., Odessa, Texas, OP
Carter, Norman Kinman, 520 W. 17th St., Santa Ana, Calif., ALR
Cerrato, Calvin M., 45 Bay State Rd., Boston 15, Mass., ALR
Chalat, Ned Ira, Parks AFB Hospital, Pleasanton, Calif., ALR
Chisholm, Gavin, 1207 Douglas St., Victoria, B. C., Canada, ALR
Ciell, August Paul, U. S. Naval Hospital, St. Albans, N. Y., ALR
Clarke, Kenneth Andrew Connal, 10026 102nd St., Edmonton, Alta., Canada, ALR
Cluskey, Donald James, Marine Corps Recruit Depot, San Diego 40, Calif., OP
Cocke, Edwin Wesley, Jr., 899 Madison Ave., Memphis, Tenn., ALR
Cohen, Frank L., 2113 Spruce St., Philadelphia 3, Pa., OP
Cohen, Lawrence Louis (1st Lt.), Davis-Monthan AFB, Tucson, Ariz., ALR
Cole, James Monroe, U. S. Naval Hospital, San Diego, Calif., ALR
Consentino, Joseph S., 225 E. 47th St., New York 17, N. Y., ALR
Cook, Norman Corrigan, 1029 Douglas St., Victoria, B. C., Canada, ALR
Couch, Ray Edwards, P. O. Box 1059, Port Arthur, Texas, ALR
Cowan, Claude Lee, 1939 13th St. N.W., Washington 9, D. C., OP
Cowin, Carl C., 6381 Hollywood Blvd., Los Angeles 28, Calif., ALR
Cox, Lawson Glynn, Walter Reed Army Hospital, Washington 12, D. C., ALR
Crossen, Robert John, 902 David Whitney Bldg., Detroit 26, Mich., OP
Culver, James Fox, 135 Monte Vista Ave., Watsonville, Calif., OP

Dalton, John Thomas, 67 Coddington St., Quincy 69, Mass., OP
Dane, Walter Henry, Veterans Administration Hospital, Albuquerque 2, N. M., ALR
Dasler, Theodore Walter, 625 N. Milwaukee St., Milwaukee 2, Wis., OP
Davidson, Bernard, 14435 Hamlin St., Van Nuys, Calif., OP
Deininger, James V., 1348 Market St., Redding, Calif., ALR
de Roetth, Andrew, Jr., 635 W. 165th St., New York 32, N. Y., OP
Diamond, Howard P., 120 Central Park South, New York 19, N. Y., ALR
Dolphin, Joseph Murray, 83 S. Franklin St., Wilkes Barre, Pa., OP
Donin, Jerry Frank, 218 Medical Arts Bldg., Winnipeg, Man., Canada, OP
Drake, Henry Patrick, 316 Michigan St., Toledo 2, Ohio, OP
Driver, Leslie Rowe, Jr., 340 Doctors Bldg., Nashville 3, Tenn., OP
Duff, Robert Lewis, Veterans Administration Hospital, McKinney, Texas, ALR
Duncan, Hugh A. G., 1390 Sherbrooke St. West, Montreal, Que., Canada, OP
Dwyer, Frank P., Jr., Latrobe Bldg., Baltimore 2, Md., ALR

Eaddy, Norman Olin, 201 N. Washington St., Sumter, S. C., OP
Eastham, Gerald Martin, 1321 Cravens Ave., Torrance, Calif., ALR
Eckley, Robert, 2001 Fourth Ave., San Diego 1, Calif., OP
Ellis, Richard A., Spruce Street Medical Bldg., Philadelphia 3, Pa., OP
Evans, Warren Cavill, Box 25, Medical College of Virginia, Richmond, Va., ALR

Fair, John Russell, Meridian, Ga., OP
Farrior, Richard Thomas, 509 Bay Shore at Hyde Park, Tampa 6, Fla., ALR
Fellows, Victor Gerald, Jr., 595 Buckingham Way, San Francisco 27, Calif., OP
Fenning, Frederick Reid, 55 Front St., Binghamton, N. Y., ALR
Fial, Edward A., 761 Fillmore Ave., Buffalo 12, N. Y., OP
Filkins, John Clayton, 418 City Nat'l Bank Bldg., Omaha 2, Neb., OP
Finley, John Kent, 51 Kings Highway West, Haddonfield, N. J., OP
Fleming, Frank Reavis, Hugh Chatham Memorial Hospital, Elkin, N. C., OP
Flynn, James L., 520 Commonwealth Ave., Boston 15, Mass., OP
Flynn, John E., 375 E. Main St., Bayshore, N. Y., OP
Forrest, Robert Lee, 5022nd ASU USAH, Camp Carson, Colo., OP
Fortier, Jean Paul, Room 201, Continental Bldg., Sherbrooke, Que., Canada, OP
Francis, Gordon Herbert, 925 W. Georgia St., Vancouver, B. C., Canada, ALR
Frerichs, Douglas Wayne, 111 E. Medlock Dr., Phoenix, Ariz., ALR
Friedland, Walter, 210 Main St., Hackensack, N. J., OP
Friedman, Herbert S., 171 E. Post Rd., White Plains, N. Y., ALR

Fuerste, Frederick, Jr., 605 American Trust Bldg., Dubuque, Iowa, OP
Garlinghouse, A. John (Capt.), Randolph Air Force Base, Texas, ALR
Gervais, Russell F., 16 Center St., Northampton, Mass., ALR
Gill, John A., 1200 E. Broad St., Richmond 19, Va., ALR
Gingrich, Wendell Daniel, University of Texas Medical School, Galveston, Texas, OP
Gleitsman, Louis Augustus, 434 High St. N.E., Warren, Ohio, OP
Goldner, Abraham Isaac, 35-02 168th St., Flushing 58, N. Y., ALR
Goodman, Edward, 1882 Grand Concourse, New York 57, N. Y., OP
Goodman, James D., 120 Middle Ave., Elyria, Ohio, OP
Gould, Wilbur James, 70 E. 73rd St., New York 21, N. Y., ALR
Grabske, Charles Frederick, Jr., 129 W. Lexington, Independence, Mo., ALR
Gupta, Indar Sagar, Toronto General Hospital, Toronto, Ont., Canada, ALR

Haase, Frederick Robert, 5515 Hilltop Ave., Baltimore 6, Md., ALR
Halperin, David, 1390 Sherbrooke St. West, Montreal 25, Que., Canada, ALR
Hanley, William John, 406 Hackley Bank Bldg., Muskegon, Mich., OP
Hansen, Axel Carl, Meharry Medical College, Nashville 8, Tenn., OP
Harding, Glen Fostner, 460 23rd St., Ogden, Utah, OP
Harms, Harold Harvey, Green Clinic, Ruston, La., OP
Harper, Lamar Blewett, 1170 Marsh St., San Luis Obispo, Calif., OP
Harris, Irwin, 416 N. Bedford Dr., Beverly Hills, Calif., ALR
Harris, James Robert, 1016 W. Cannon, Fort Worth, Texas, ALR
Hauck, Dale Leon, 453 S. Soto St., Los Angeles 33, Calif., OP
Hawkins, Robert Emmet, 211 Medical Arts Bldg., Omaha 2, Neb., ALR
Hayden, George Douglas, Medical College of Virginia, Richmond 19, Va., ALR
Hays, Jack Ross, 310 Van Antwerp Bldg., Mobile 12, Ala., ALR
Hazen, Robert Melville, 4050th A.S.U., U. S. Army Hospital, Ft. Sill, Okla., ALR
Henry, Marvin D., 7141 S. Jeffrey Ave., Chicago 49, Ill., OP
Hinton, Clarence David, 1116 W St., N.W., Washington, D. C., ALR
Holman, James Maye, 525 E. 68th St., New York 21, N. Y., ALR
Horwich, Harry, 463 Rockaway Ave., Valley Stream, N. Y., OP
Hui, Robert Moon, 180 Fort Washington Ave., New York 32, N. Y., ALR
Hunt, Harold Eugene, 150 Eighth St., S.E., Paris, Texas, OP

Jim, Vernon K. S., Mayo Clinic, Rochester, Minn., ALR
Johnson, Samuel B., 319-25 Plaza Bldg., Jackson, Miss., OP
Jones, Arthur Denton, 1707 San Marco Blvd., Jacksonville 7, Fla., ALR
Jones, Edward Tracy, 400 E. Grand Ave., Beloit, Wis., OP
Jorgenson, Ralph E., 79 E. 3rd Street North, Provo, Utah, OP

Kellerman, Leo David, 61-34 188th St., Flushing 65, N. Y., OP
Kelley, Robert Reed, Box 164, William Beaumont Army Hospital, El Paso Texas, OP
Kent, Charles, 270 Commonwealth Ave., Boston 16, Mass., ALR
Kent, Louis Richard, 104 W. Clark St., Champaign, Ill., OP
King, George David, 605 Commonwealth Ave., Boston 15, Mass., ALR
Kirschberg, Leo Sanford S., 1390 Sherbrooke St. West, Montreal 25, Que., Canada, OP
Kopp, Ernst Alfred, Veterans Administration Hospital, Albany 8, N. Y., ALR
Krech, William J., 683 E. Broad St., Columbus 15, Ohio, ALR

Labriola, Charles, 141 Noble St., Brooklyn 22, N. Y., OP
Lagonegro, John Harry, 419 Walnut St., Elmira, N. Y., ALR
Lancaster, Mary Agnes, 1316 Medical Arts Bldg., Dallas 1, Texas, OP
Landau, Maurice, 108-22 70th Ave., Forest Hills, N. Y., OP
Landers, Gardner H., 506 W. Faulkner St., El Dorado, Ark., OP
Larkin, Watson Bright (Comdr.), U. S. Naval Hospital, Great Lakes, Ill., ALR
Lawson, Lawrence James, Jr., 636 Church St., Evanston, Ill., OP
Lees, James Kinler, 1321 Cravens Ave., Torrance, Calif., ALR
Leigh, Milton Moses, 109 S. Broad St., Mobile, Ala., ALR
Leigh, Richard E., Jr., 523 Medical Arts Bldg., Houston 2, Texas, OP

Lemon, Arden Neil, 3701 N. Broad St., Philadelphia 40, Pa., ALR

Lerner, Sidney Simon, 6226 N. 16th St., Philadelphia 41, Pa., ALR

Linfesty, John William (Col.), USAF Hospital, Feamcon Air Base, San Francisco, Calif., OP

Linthicum, Frederick H., 523 W. Sixth St., Los Angeles 14, Calif., ALR

Lipani, John G., 921 President St., Brooklyn 15, N. Y., OP

Littell, Joseph Jerome, Jr., 711 D St., San Rafael, Calif., ALR

Little, Robert Herriot, 455 Warren St., Hudson, N. Y., ALR

Livingood, William Cook, U. S. Naval Hospital, Philadelphia 45, Pa., ALR

Lockhart, George, III, 2020 E. 93rd St., Cleveland 6, Ohio, OP

Long, Charles Edward, 1092 Madison Ave., Memphis 3, Tenn., ALR

Long, Ira Morris, 903-4 Medical Arts Bldg., Chattanooga 3, Tenn., OP

Loughran, Elbert Hall (Capt.), 135 E. 65th St., New York 21, N. Y., ALR

Luton, James Polk, 203 Medical Arts Bldg., Oklahoma City 2, Okla., OP

Maher, Joseph J., Guthrie Clinic, Sayre, Pa., ALR

Maisonville, Philippe, St. Louis, 718 Granville St., Vancouver 2, B. C., Canada, OP

Marbry, George Walter, 408 Hynds Bldg., Cheyenne, Wyo., ALR

Markey, Frank R., 13810 Michigan Ave., Dearborn, Mich., OP

Markley, Richard E., 520 Mayer Bldg., Portland 5, Ore., OP

Marks, Salvo Philip, 5305 Hohman Ave., Hammond, Ind., OP

Marshall, Mark Robert, University Hospital, Edmonton, Alta., Canada, OP

Martin, Roy Allan, 1706 Heyburn Bldg., Louisville 2, Ky., ALR

Matteson, Albert Reese, 101 W. North St., Danville, Ill., ALR

Mazzarella, Lawrence Aurelio, 220 Sterling Place, Brooklyn 38, N. Y., ALR

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McCrea, Harold J., 111 W. 21st St., Olympia, Wash., ALR

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McMurray, David John, U. S. Naval Hospital, Beaufort, S. C., ALR

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Messina, Joseph Michael, 8821 Reseda Blvd., Northridge, Calif., ALR

Meyer, Dexter, Jr., U. S. Hospital, Mare Island, Vallejo, Calif., OP

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Millonig, Arthur Frederick, 770 Fidelity Bldg., Dayton 2, Ohio, ALR

Mills, Charles Kelley, 314 E. Main, Gainesville, Texas, OALR

Mirmelstein, Alvin B. H., 3015 West Ave., Newport News, Va., ALR

Mohney, Glenn E., U. S. Army Hospital, Camp Gordon, Augusta, Ga., OP

Monahan, Robert Hugh, 1023 Lowry Medical Arts Bldg., St. Paul 2, Minn., OP

Monestere, Charles Joseph, 1073 Bushwick Ave., Brooklyn 21, N. Y., OP

Montgomery, Daniel Cameron, Jr., 124 S. Broadway, Greenville, Miss., ALR

Moore, Bernard J., Murphy Army Hospital, Waltham, Mass., ALR

Morelli, Loreno, 290 W. Michigan Ave., Jackson, Mich., ALR

Nachlas, Nathan Edward, Latrobe Bldg., Baltimore 2, Md., ALR

Nelson, Donald George, 1640 H St., Bakersfield, Calif., OP

Nesburn, Henry Roger, 632 S. San Vicente Blvd., Los Angeles 48, Calif., OP

Nystrom, Robert Elmer, 1442 N. Third, Abilene, Texas, OP

Oosterhous, George Edward, 304 W. Washington Ave., Madison 3, Wis., OP

Orrico, Joseph Frank, 4756 W. Fullerton Ave., Chicago 39, Ill., ALR

Parker, Charles Orville, Jr., U. S. Naval Hospital, Philadelphia 45, Pa., OP

Pashby, Thomas Joseph, 1050 Avenue Road, Toronto, Ont., Canada, OP

Paterson, William Patrick Emery, 607 Medical Arts Bldg., Ottawa, Ont., Canada, ALR

Pember, John Frank, 508 W. Milwaukee St., Janesville, Wis., OP

Petitti, Leonard N., EENT Section, U. S. Army Hospital, Camp Carson, Colo., ALR

Pierce, Maurice Murray, 432 Medical Arts Bldg., Winnipeg, Man., Canada, ALR

Pilger, Irvin S., 3611 Century Blvd., Lynwood, Calif., OP

Placek, Louis Thomas, 425 Aquila Ct., Omaha 2, Neb., ALR

Poushter, David Leon, 608 E. Genesee St., Syracuse 2, N. Y., ALR

Power, John Edward, Jr., 324 W. Superior St., Duluth 2, Minn., OP

Reasoner, Billy Elmer, Great Falls Clinic, Great Falls, Mont., OP
Reed, Howard Newns, Winnipeg Clinic, Winnipeg, Man., Canada, OP
Rees, Robert Lorraine, 115 E. South Temple St., Salt Lake City 1, Utah, OP
Reik, Louis, 807 Madison Ave., Covington, Ky., OP
Riccio, Frank Joseph, 923 E. Main St., Bridgeport, Conn., ALR
Rice, Earle W., 390 Main St., Worcester 8, Mass., ALR
Riggs, Cecil Dempsey, U. S. Naval Hospital, Oakland, Calif., ALR
Roth, Carl W., 22 Buttles Ave., Columbus 8, Ohio, ALR
Ruedemann, Albert Darwin, Jr., 1633 David Whitney Bldg., Detroit 26, Mich., OP
Rullan, Antonio, Ave. Ponce de Leon 1803, Santurce, Puerto Rico, ALR
Ruth, Paul Easton, 510 Dollar Bank Bldg., Youngstown 3, Ohio, OP

Sands, Abraham M., 874 Carroll St., Brooklyn 15, N. Y., OP
Saunders, Leslie, 3 Northampton Rd., Amsterdam, N. Y., ALR
Saunders, William H., University Hospital, Ohio State University, Columbus, Ohio, ALR
Schiller, Filmore, 700 N. Michigan Ave., Chicago 11, Ill., ALR
Schopp, Robert Colin, 999 Delaware Ave., Buffalo 9, N. Y., OP
Scott, Gordon Hilbert, 8 S. Michigan Ave., Chicago 3, Ill., ALR
Serio, Joseph C., 591 Delaware Ave., Buffalo 2, N. Y., ALR
Shapiro, Myron J., 198 Clinton Ave., Newark 5, N. J., ALR
Shea, Samuel E., McCannel Clinic, Minot, N. D., ALR
Shepperd, Lewis A., 580 Park Ave., New York 21, N. Y., ALR
Shirley, Samuel Yarn, Medical Arts Bldg., Ottawa, Ont., Canada, OP
Shoch, David, 700 N. Michigan Ave., Chicago 11, Ill., OP
Simon, Marshall Urkov, 2335 Devon Ave., Chicago 45, Ill., ALR
Skelly, John Francis, 201-3 Lettunich Bldg., Watsonville, Calif., ALR
Smillie, John Wilson, Veterans Administration Hospital, Ann Arbor, Mich., OP
Smith, James Brydon, 174 St. George St., Toronto, Ont., Canada, ALR
Smith, Taylor, 711 D St., San Rafael, Calif., OP
Smith, William Lloyd, Tripler Army Hospital, Honolulu, Hawaii, OP
Sotoodeh, Bagher, 1818 Ross Pl., Albuquerque, N. M., OALR
Stambaugh, James Lee, Jr., (Capt.) 171 Station Hospital, APO 59, c/o PM, San Francisco, Calif., OP
Stamm, Thomas James, 7351 North Ave., River Forest, Ill., OP
Stern, Manfred, 771 West End Ave., New York 25, N. Y., ALR
Stiernberg, Royall Campbell, 411 Third Ave. N., Texas City, Texas, ALR
Stock, Karl William, Mills Bldg., Topeka, Kan., OP
Stonkus, John A., 725 Fourth St., Marysville, Calif., ALR

Taquino, George James, Jr., 1313 Nat'l Bank of Commerce Bldg., New Orleans 12, La., ALR
Thompson, John Madison, 921 Lincoln Way East, South Bend, Ind., OP
Thompson, Ollie Hammond, Jr., 218 N Division St., Salisbury, Md., OP
Tibbens, George Filmore, 535 Washington Trust Bldg., Washington, Pa., OP
Trakas, John Christos, 1269 Beacon St., Brookline 46, Mass., ALR
Traul, Robert Earl, 110 W. Main Cross, Findlay, Ohio, OP
True, William Ray, 518 Professional Bldg., Monterey, Calif., OP
Tschiassny, Kurt, 101 Louis Ave., Cincinnati 20, Ohio, ALR

Vancil, Gordon Quincy, 122 S. Michigan Ave., Chicago 3, Ill., OP

Wade, Frederick Ellsworth, 1103 Grand Ave., Kansas City 6, Mo., OP
Wahl, John William, 353 S. Westmoreland Ave., Los Angeles 5, Calif., ALR
Walker, Duncan DeVane, Jr., 753 Pine St., Macon, Ga., ALR
Watson, Thomas Young, 315 Wabeek Bldg., Birmingham, Mich., OP
Weisbach, Philip T., Jr., 560 Center St., Beaumont, Texas, OP
White, David, 1136 W. Sixth St., Los Angeles 17, Calif., ALR
White, Thomas Paul, 520 Commonwealth Ave., Boston 15, Mass., OP
White, Wesley Rhys, 327 N. Washington Ave., Scranton 3, Pa., ALR

White, William Otis, 1345 Greene St., Augusta, Ga., OP

Wilder, Raboteau T., First Nat'l Bank Bldg., Bluefield, W. Va., ALR

Willard, Robert L., 2360 Monroe St., Toledo 2, Ohio, OP

Williams, Marvin Lee, 619 Main St., Texarkana, Texas, ALR

Wilson, Henry Beatty, 6 E. Eager St., Baltimore 1, Md., OP

Wishbow, Alexander John, 214 South St., Morristown, N. J., OP

Wishlow, Nicholas Frederick, 123 Main St., Chilliwack, B.C., Canada, OP

Wright, William Ross, 361 Regent St., Fredericton, N.B., Canada, OALR

Yourd, Raymond Atchison, 104 W. Clark St., Champaign, Ill., ALR

Zahry, Ney John, 2300 Truxtun Ave., Bakersfield, Calif., ALR

Zinn, Sheldon, 950 E. 59th St., Chicago 37, Ill., OP

The following candidates have qualified for Fellowship in the Academy except in some single detail—certification or the signatures of sponsors. The deficiencies are expected to be made up before the Annual Business Meeting.

Goldman, Irvin A., 408 Huey P. Long Ave., Gretna, La., ALR

Harper, John Y., 849 Fifth St., Port Arthur, Texas, ALR

Horsley, George Ernest, Madison Sanitarium & Hospital, Madison College, Tenn., ALR

PROGRAM IN BRIEF

1954 Meeting

The Waldorf-Astoria Hotel — New York

SATURDAY, SEPTEMBER 18, 1954

9:00 a.m.—Council Meeting—Room 4NP

SUNDAY, SEPTEMBER 19, 1954

9:00 a.m. — Registration — Checkroom, Second Floor
9:00 a.m.—Ladies' Registration—Pillement Suite
9:00 a.m.—Sale of Instruction Tickets—Room 805
9:00 a.m.—Official Opening of Exhibits: Scientific: Crane Suite, 4V; Regency Suite; First and Second Balconies, Grand Ballroom
Technical: Jade Room, Basildon Room, Astor Gallery, East Foyer, Le Perroquet Suite
10:00 a.m.—Teachers' Section: Ophthalmology—Sert Room
10:00 a.m.—Teachers' Section: Otolaryngology—Grand Ballroom
12:30 p.m.—Home Study Courses Faculty Luncheon—Room 4M
4:30 p.m.—President's Reception—Grand Ballroom
8:00 p.m.—Special Scientific Program: Committee on Conservation of Hearing and Otosclerosis Study Group—Grand Ballroom, Roosevelt Hotel
8:00 p.m.—Special Scientific Program: Joint Committee on Industrial Ophthalmology—Jansen Suite
8:00 p.m.—Special Scientific Program: American Orthoptic Council and American Association of Orthoptic Technicians—Empire Room

MONDAY, SEPTEMBER 20, 1954

9:00 a.m.—Instruction Courses, Orthoptic Technicians—Rooms 4NP, 4R, Jansen Blue Room (4B)
9:30 a.m.—Joint Scientific Session—Grand Ballroom
10:15 a.m.—Instruction Courses, Orthoptic Technicians — Rooms 4NP, 4R, Jansen Blue Room (4B)
11:30 a.m.—Instruction Courses, Orthoptic Technicians — Rooms 4NP, 4R, Jansen Blue Room (4B)
2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom
2:00 p.m.—Television: Otolaryngology—Empire Room
2:00 p.m.—EYE Instruction Courses—Eighth Floor, Jansen Salon (4A), Jansen Blue Room (4B)
3:15 p.m.—EYE Instruction Courses—Eighth Floor, Jansen Salon (4A), Jansen Blue Room (4B)
4:30 p.m.—EYE Instruction Courses—Eighth Floor, Jansen Salon (4A), Jansen Blue Room (4B)
6:30 p.m.—Alumni Dinners
9:00 p.m.—Evening of Diversion—Grand Ballroom

TUESDAY, SEPTEMBER 21, 1954

9:00 a.m.—Section on Ophthalmology: Scientific Papers and Motion Pictures—Grand Ballroom
9:00 a.m.—ENT Instruction Courses—Eighth Floor and Jansen Salon (4A)
9:00 a.m.—Instruction Courses, Orthoptic Technicians — Rooms 4NP, 4R, Jansen Blue Room (4B)
10:15 a.m.—ENT Instruction Courses—Eighth Floor and Jansen Salon (4A)
10:15 a.m.—Instruction Courses, Orthoptic Technicians — Rooms 4NP, 4R, Jansen Blue Room (4B)
11:30 a.m.—ENT Instruction Courses—Eighth Floor and Jansen Salon (4A)
11:30 a.m.—Instruction Courses, Orthoptic Technicians — Rooms 4NP, 4R, Jansen Blue Room (4B)
2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom
2:00 p.m.—Television: Otolaryngology—Empire Room
2:00 p.m.—EYE Instruction Courses—Eighth Floor, Jansen Salon (4A), Jansen Blue Room (4B)

3:15 p.m.—EYE Instruction Courses—Eighth Floor, Jansen Salon (4A), Jansen Blue Room (4B)

4:30 p.m.—EYE Instruction Courses—Eighth Floor, Jansen Salon (4A), Jansen Blue Room (4B)

5:30 p.m.—Dinner Meeting of International Association of Eye, Ear, Nose and Throat Society Secretaries—Room 4MNP

8:00 p.m.—Special Scientific Program: Committee on Plastic and Reconstructive Surgery—Sert Room

WEDNESDAY, SEPTEMBER 22, 1954

9:00 a.m.—Section on Ophthalmology: Scientific Papers and Motion Pictures—Grand Ballroom

9:00 a.m.—ENT Instruction Courses—Eighth Floor and Jansen Salon (4A)

9:00 a.m.—Television: Ophthalmology—Empire Room

10:15 a.m.—ENT Instruction Courses—Eighth Floor and Jansen Salon (4A)

11:30 a.m.—ENT Instruction Courses—Eighth Floor and Jansen Salon (4A)

12:45 p.m.—Council Meeting Luncheon—Room 4NP

2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom

2:00 p.m.—EYE Instruction Courses—Eighth Floor, Jansen Salon (4A), Jansen Blue Room (4B)

3:15 p.m.—EYE Instruction Courses—Eighth Floor, Jansen Salon (4A), Jansen Blue Room (4B)

4:30 p.m.—EYE Instruction Courses—Eighth Floor, Jansen Salon (4A), Jansen Blue Room (4B)

THURSDAY, SEPTEMBER 23, 1954

9:00 a.m.—Section on Ophthalmology: Scientific Papers and Motion Pictures—Grand Ballroom

9:00 a.m.—ENT Instruction Courses—Eighth Floor

10:15 a.m.—ENT Instruction Courses—Eighth Floor

11:15 a.m.—ENT Instruction Courses—Eighth Floor

12:30 p.m.—Faculty Luncheon — Grand Ballroom

2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom

2:00 p.m.—EYE Instruction Courses—Eighth Floor

3:15 p.m.—EYE Instruction Courses—Eighth Floor

4:30 p.m.—EYE Instruction Courses—Eighth Floor

5:30 p.m.—Business Meeting—Jansen Suite

8:00 p.m.—Motion Pictures — Empire Room

FRIDAY, SEPTEMBER 24, 1954

9:00 a.m.—Section on Ophthalmology, meeting jointly with the American Society of Ophthalmologic and Otolaryngic Allergy: Scientific Papers and Motion Pictures — Grand Ballroom

2:00 p.m.—Joint Scientific Session with American Society of Ophthalmologic and Otolaryngologic Allergy—Sert Room

SCIENTIFIC SECTIONS

JOINT SESSION

Monday, September 20, 1954
9:30 a.m.
GRAND BALLROOM

Presiding Officer:
WALTER H. THEOBALD, M.D.
President

Secretary:
LAWRENCE R. BOIES, M.D.

Call to Order.....The President
Announcements.....The Secretary
Introduction of the Guest of Honor, William James McNally, M.D. and Other Distinguished Guests.....The President
Address by the President
American Medical Centers: Their Role in Education
Address by the Guest of Honor
Some Thoughts About Research in the Training of a Doctor
Presentation of Honor Awards.....The President

SYMPOSIUM: ANTIBIOTICS UP TO DATE

The Rational Use of Antibiotics in Ophthalmology
Irving H. Leopold, M.D.
Philadelphia, Pa.

The Rational Use of Antibiotics in Otolaryngology
James H. Maxwell, M.D.
Ann Arbor, Mich.

The Development of Resistance to Antibiotics
Seymour Halbert, M.D.
New York, N. Y.
BY INVITATION

The Rational Use of Antibiotics in the General Practice of Medicine
Wesley W. Spink, M.D.
Minneapolis, Minn.
BY INVITATION

SECTION ON OTOLARYNGOLOGY

Monday, September 20, 1954
2:00 p.m.
GRAND BALLROOM

Presiding Officer:
WALTER H. THEOBALD, M.D.
President

Secretary:
LAWRENCE R. BOIES, M.D.

ONE HUNDRED YEARS OF LARYNGOSCOPY: TO THE MEMORY OF GARCIA, TUERCK AND CZERMAK

Friedrich S. Brodnitz, M.D.
New York, N. Y.

At the time of this Academy Meeting it will be exactly 100 years since the singing teacher Manual Garcia succeeded in seeing the vocal cords in the living by mirror laryngoscopy. His report on a series of very exact self-observations of the action of the vocal cords laid the foundation for the examination of a hitherto hidden part of the human body. At his one hundredth birthday in 1901 Garcia was called by Felix Semon the "Father of Laryngology."

Ludwig Tuerck began in 1857 to use the laryngeal mirror as a medical instrument but discontinued his experiments because of the limitations of daytime observation in sunlight. Johann N. Czermak, using Tuerck's mirrors in 1858,

AUTHORS OF PAPERS

All slides or films must be in the hands of the projection operator before the opening of each session.

Please be prepared to submit papers to the recorder immediately following presentation.

overcame in a short time all difficulties by the use of artificial light concentrated in a concave mirror. To both Czermak and Tuerck goes the credit for introducing and perfecting laryngoscopy as a working tool of medical examination.

2:10 p.m.

STRESS IN DISEASE: PARTICIPATION OF THE AIRWAYS IN MAN'S RESPONSE TO THREAT

Thomas H. Holmes, M.D.
Seattle, Wash.
BY INVITATION

3:10 p.m.

VISIBLE ORAL LESIONS
(A Motion Picture)

Lewis F. Morrison, M.D.
Eugene S. Hopp, M.D.
San Francisco, Calif.

This motion picture demonstrates a wide variety of common and uncommon infections and neoplasms of the mouth. The film was produced to emphasize the importance of visible diagnostic factors. In a few instances the operative treatment is presented in some detail.

3:50 p.m.

INTRA-ORAL AND PHARYNGEAL MOVEMENTS IN CHEWING, SWALLOWING AND PHONATION
(A Motion Picture)

Harold M. Syrop, D.D.S.
Richmond, Va.
BY INVITATION

An unusual film depicting normal oral and pharyngeal movements photographed in an individual who had had a large portion of a side of his face removed for tumor.

4:15 p.m.

SYMPOSIUM: "A LUMP IN THE THROAT"

Peter N. Pastore, M.D.
Richmond, Va.

C. Knight Aldrich, M.D.
Minneapolis, Minn.
BY INVITATION

Lyman G. Richards, M.D.
Boston, Mass.

John R. Lindsay, M.D.
Chicago, Ill.

An informal "off the cuff" panel discussion of this common and important symptom.

SECTION ON OPHTHALMOLOGY

Tuesday, September 21, 1954
9:00 a.m.

GRAND BALLROOM

Presiding Officer:
FRANCIS HEED ADLER, M.D.
Vice-President

Secretary:
KENNETH L. ROPER, M.D.

HEMI-ATROPHY OF THE IRIS AND CILIARY BODY FOLLOWING DIATHERMY TREATMENT FOR DETACHED RETINA
(A Clinicopathologic Case Report)

S. Rodman Irvine, M.D.
Beverly Hills, Calif.

Warren A. Wilson, M.D.
Los Angeles, Calif.

The pathologic specimen demonstrates an unusual complication of diathermy treatment for retinal detachment. The long posterior ciliary artery was occluded by diathermy and collateral anterior ciliary circulation embarrassed by tenotomy of the external rectus. The retina was reattached but the eye was lost as a result of anterior chamber hemorrhage and glaucoma.

9:05 a.m.

PERSISTENT HYPERPLASTIC PRIMARY VITREOUS
(Jackson Memorial Lecture)

Algernon B. Reese, M.D.
New York, N. Y.

9:40 a.m.

DIAGNOSIS AND TREATMENT OF TOXOPLASMIC UVEITIS

Ralph W. Ryan, M.D., M.S. Ophth.
William M. Hart, M.D., Ph.D.
and
John J. Culligan, M.D.
Ralph D. Gunkel, O.D.
Leon Jacobs, Ph.D.
Maryjane K. Cook
BY INVITATION
Bethesda, Md.

Discussers:

Jacob K. Frenkel, M.D.
Kansas City, Kan.
BY INVITATION

Don E. Eyles, Sc.D.
Memphis, Tenn.
BY INVITATION

This is a preliminary report on an investigation of granulomatous uveitides being carried out at the National Institutes of Health. The purpose of these studies is to contribute to our knowledge of causes of such eye diseases and to the establishment of satisfactory diagnostic criteria and regimens of therapy. On the basis of this research it appears that Toxoplasma gondii is a relatively frequent cause of granulomatous uveitis in the adult. Evidence from some of the cases suggests that the systemic use of cortisone, hydrocortisone, or corticotropin in the absence of concurrent therapy with anti-Toxoplasma drugs may lead to marked exacerbation of a granulomatous lesion due to Toxoplasma.

10:20 a.m.

THE SPOON EXTRACTION OF CATARACT
(A Motion Picture)

Norman L. Cutler, M.D.
Wilmington, Del.

The first extraction of a cataract intracapsularly was done with a spoon by Pagenstecher in 1877. He used his spoon more as a plane on which to deliver the lens and not primarily as an instrument to rupture the zonular fibers. It was used for a short time by others, notably by De Wecker and Fuchs, but was abandoned because of the high vitreous loss. This present procedure has been used on 230 patients over the past six years. The incidence of vitreous loss has been reduced to one case in the last fifty operations and the incidence of capsule rupture to 8 per cent. The necessary prerequisite is that the eye should be soft. A round pupil extraction may be done with the same facility as a combined extraction.

10:30 a.m.

Recess

10:35 a.m.

SUBACUTE CIRCUMSCRIBED MACULAR CHOROIDITIS SIMULATING INTRAOCULAR TUMOR

Wilfred E. Fry, M.D.
Edmund B. Spaeth, M.D.
Philadelphia, Pa.

Discusser:

Bertha A. Klien, M.D.
Chicago, Ill.

This paper concerns the ophthalmoscopic and pathologic appearance of subacute circumscribed retinochoroiditis in the macula. The ophthalmoscopic and pathologic appearances will be described. Five cases will be reported. In two cases there were associated ophthalmoscopic and pathologic reports. Three other cases are also included. One of these was of an intraocular tumor located in the macular region. The second, a circumscribed macular lesion without pathologic report, and a third, a case of secondary glaucoma wherein the pathologic findings show a diffuse subacute inflammatory change throughout the posterior pole.

The pathology in the cases simulating tumor appears to be a subacute proliferative retinochoroiditis. It does not appear to be on a vascular basis.

11:05 a.m.

A SIMPLIFIED PTOSIS OPERATION
(A Motion Picture)

Charles E. Iliff, M.D.
Baltimore, Md.

This procedure shortens conjunctiva, Muller's muscle, and the levator tendon,

and re-establishes the filamentous attachments to the septum orbitale without disturbing the anatomic relations of these structures. It is recommended for cases in which any small amount of levator action can be demonstrated, and is justified as a first operation in many instances in which no such function is apparent, since possible failure would not interfere with a later procedure using the frontalis or the superior rectus muscle.

11:20 a.m.
NEW LENS MATERIALS: INDICATIONS AND HAZARDS

Arthur H. Keeney, M.D.
and
H. Lyle Duerson, Jr.
BY INVITATION
Louisville, Ky.

Discusser:
Col. Victor A. Byrnes, USAF (MC)
New York, N. Y.

Currently available lens materials incorporating mechanical protection are (1) case hardened industrial thickness glass (CHI), (2) case hardened semi-ophthalmic thickness glass, and (3) plastic lenses of allyl resins or similar substances. The principal advantages and disadvantages of plastic lenses will be discussed, as well as the indications for each type of lens.

11:45 a.m.
THE EFFECT OF RETROBULBAR INJECTIONS OF PROCAINE ON THE OPTIC NERVE

Frank D. Carroll, M.D.
and
Andrew deRoetth, Jr., M.D.
BY INVITATION
New York, N. Y.

Retrobulbar injection of procaine in patients causes a temporary decrease or complete loss of visual acuity and visual fields. This is not a contraindication to its use but rather an advantage, especially in cataract surgery. The optic nerve is a sensory nerve; procaine produces a sensory conduction block which temporarily interferes with the function of the nerve. Numerous illustrations will show the extent and duration of impairment of optic nerve function.

SECTION ON OTOLARYNGOLOGY

Tuesday, September 21, 1954
2:00 p.m.

GRAND BALLROOM

Presiding Officer:
THEODORE E. WALSH, M.D.
Vice-President

Secretary:
LAWRENCE R. BOIES, M.D.

THE OTOTOXICITY OF DRUGS IN ANIMALS
(The Wherry Memorial Lecture)

Moses H. Lurie, M.D.
Boston, Mass.

2:30 p.m.
THE TREATMENT OF MIDDLE EAR DEAFNESS BY PROSTHESIS
(A Motion Picture)

Heinrich G. Kobrak, M.D., Ph.D.
Chicago, Ill.

The film is based on clinical eardrum photography in conjunction with laboratory experiments in which experimental conduction lesions are recorded cinematographically. When a prosthesis is fitted, in favorable patients, a substantial protracted hearing improvement may be obtained.

The three main groups of prostheses are outlined: the eardrum prosthesis, the tympanal prosthesis and the ossicular prosthesis. Each prothesis type is discussed and its functional effect explained by animation, animal experiment and clinical photography. The difference between oscillating and nonoscillating prostheses is shown.

Choice of patients, preliminary office tryouts, the technic of fitting with the prosthesis for protracted wear, audiologic results and psychologic effect are demonstrated. The use of ointments as prosthetic material is stressed.

The difference between an electronic hearing aid and a prosthesis is outlined. The prosthesis in proper patients is easy, inexpensive, invisible and effective.

3:00 p.m.

CONSTITUTIONAL FACTORS IN MENIERE'S DISEASE AND OTOSCLEROSIS

Albert Damon, M.D.
New York, N. Y.
BY INVITATION

Sylvia G. Traube, M.D.
New York, N. Y.
BY INVITATION

William H. Sheldon, M.D.
New York, N. Y.
BY INVITATION

Discusser:

Edmund P. Fowler, Jr.
New York, N. Y.

Some 170 patients with Meniere's disease or otosclerosis have been studied in respect to constitutional factors which may relate to the etiology of these disorders. Such factors include body build, utilizing the somatotype technic; age at menarche; and ability to taste phenylthio-carbomide (PTC), a genetic trait. These two groups are compared to each other, to patients with other diseases, and to normal control subjects.

3:25 p.m.

PRESERVATION OF HEARING IN MASTOID SURGERY: TECHNICAL CONSIDERATIONS

Shirley Harold Baron, M.D.
San Francisco, Calif.

Discussers:

Arthur L. Juers, M.D.
Louisville, Ky.

Robert C. McNaught, M.D.
San Francisco, Calif.

The "key" to conservation of hearing in surgery for chronic mastoid disease is to eradicate from our minds the obsession of intracranial complications. This has been made possible by the antimicrobial therapy and improved technics which now permit us to meet the challenge of preserving or improving function.

The best hearing results are from surgery, which leaves a mobile stapes and an unscarred round window in a sealed tympanic air space in continuity with the eustachian tube. Technics by which this has been accomplished will be described.

3:55 p.m.

HEARING REHABILITATION SERVICES IN PRIVATE PRACTICE (A Motion Picture)

Frederick R. Guilford, M.D.
Houston, Texas

This picture demonstrates a complete hearing evaluation, involving history taking, otologic examination, tuning fork tests, puretone audiometry, speech audiometry, and pedoaudiometry; and rehabilitation methods involving medical, surgical, prosthetic and educational practices (such as lip-reading, auditory training, and speech therapy). It emphasizes the team approach of otologist and audiologist cooperating closely under one roof in private medical practice for the evaluation and rehabilitation of the hearing handicapped.

4:10 p.m.

SYMPOSIUM: THE FACTS ABOUT HEARING AID FITTING

Jerome A. Hilger, M.D.
St. Paul, Minn.

Aram Glorig, Jr., M.D.
Los Angeles, Calif.

Werner Mueller, M.D.
Boston, Mass.

The average practicing otologist must make 90 per cent of the case decisions relative to (1) which hearing handicapped patient should have an aid; (2) which aid he should have; and (3) what follow-up and additional guidance procedures should be performed for him.

Audiologic clinic facilities can perform this function for only a small percentage of the total case load.

The purpose of this symposium is the formulation in outline manner of an adequate approach and solution within the reach of the average otologist.

SECTION ON OPHTHALMOLOGY

Wednesday, September 22, 1954

9:00 a.m.

GRAND BALLROOM

Presiding Officer:
DOHRMANN K. PISCHEL, M.D.
Vice-President

Secretary:
KENNETH L. ROPER, M.D.

INTRAOCULAR ASPERGILLUS FUMIGATUS INFECTION (A Clinicopathologic Case Report)

Arthur E. Schultz, M.D.
East Lansing, Mich.

A 33-year-old white male was struck in the right eye by a penetrating foreign body while sawing wood. Fifteen days after the initial injury a filamentous mass was seen growing in the anterior chamber. Three surgical procedures were performed.

Kodachromes show progress of the case.

9:05 a.m.
SYMPOSIUM: RETROLENTAL FIBROPLASIA (RETINOPATHY OF PREMATURITY)

Introduction
Algernon B. Reese, M.D.
New York, N. Y.

Clinical Course
William C. Owens, M.D.
Washington, D. C.

Pathology
Jonas S. Friedenwald, M.D.
Baltimore, Md.

Pediatric Considerations
William A. Silverman, M.D.
New York, N. Y.
BY INVITATION

Etiology
V. Everett Kinsey, Ph.D.
Detroit, Mich.
BY INVITATION

Animal Experimentation
Arnall Patz, M.D.
Baltimore, Md.

Management
Frederick C. Blodi, M.D.
Iowa City, Iowa

Conclusions
Algernon B. Reese, M.D.

SECTION ON OTOLARYNGOLOGY

Wednesday, September 22, 1954

2:00 p.m.

GRAND BALLROOM

Presiding Officer:
WALTER H. THEOBALD, M.D.
President

Secretary:
LAWRENCE R. BOIES, M.D.

PRESENTATION OF NEW INSTRUMENTS

2:10 p.m.
A PHYSIOLOGIC CONCEPT OF THE ALLERGIC STATE

Charles F. Code, M.D.
Rochester, Minn.
BY INVITATION

Histamine is responsible for many of the symptoms of the hypersensitive state in man and animals. It can be demonstrated decisively that histamine is liberated from cells when they are exposed to an antibody-antigen reaction. Histamine, however, while it accounts for many of the symptoms, is not the fundamental mechanism by which the reaction is produced. Studies have been conducted attempting to elucidate the mechanism through which histamine is released during allergic and anaphylactic reactions and the possible role of cortisone in controlling these mechanisms.

2:40 p.m.

A CURRICULUM OF OTOLARYNGOLOGIC UNDERGRADUATE AND POST-GRADUATE INSTRUCTION IN PROSPECT

Albert C. Furstenberg, M.D.
Ann Arbor, Mich.

In any plan for continuing education in otolaryngology one must refer to that program of graduate study which calls for a prolonged period of instruction in an educational institution, after the internship has been served. It is a highly accepted and approved method of acquiring the knowledge and technical skills of the specialty and the program for which our graduate candidates must invariably strive. A dynamic and modern undergraduate curriculum is essential to adequate preparation for the general practice of medicine. Moreover, it should be offered in a comprehensive and interesting manner as an inspiration to undergraduate students to give serious consideration to the field of otolaryngology in planning their future careers.

One of the greatest needs today is the recruitment and training of personnel. We must find young doctors with scientific rectitude and motivation and train them thoroughly in otolaryngology to meet the present day needs of the practice of this specialty. To make the field attractive and to recruit applicants for otolaryngology an ideal program of undergraduate instruction is recommended. For continuing education in otolaryngology, it is extremely important that we mobilize all our resources in order that we may not only rehabilitate but greatly expand our programs of instruction. To meet this obligation with precision of action a comprehensive curriculum of graduate medical education in otolaryngology is offered.

3:00 p.m.

NYSTAGMOGRAPHY (A Motion Picture)

Nicholas Torok, M.D.
Chicago, Ill.

[illegible] ITATION

The duration of the evoked or reactive vestibular reaction cannot any longer be considered as the sole criterion of vestibular function. Thus, efforts were made in recent years to extend the fields of observation beyond that of the duration of the postcaloric or postrotatory nystagmus. Consequently, we arrive at a point where a single observation of the nystagmus becomes unsatisfactory. Such an endeavor is not a recent one, but the graphical recordings have to move now from the experimental laboratory to the clinic.

An apparatus was developed and constructed, and the mechanism and working principle of the Torok-Guillemin-Barnothy photoelectric nystagmograph is presented. The film demonstrates the technic of the recording. A short selection of graphs is shown and the evaluation of postcaloric nystagmus discussed.

3:15 p.m.

THE USE OF SKIN GRAFTS IN OTOLOGY

J. Brown Farrior, M.D.
Tampa, Fla.

Discusser:
Ben Senturia, M.D.
St. Louis, Mo.

The skin graft is advocated only as an adjuvant to good temporal bone surgery with the goal of reducing the nuisance of prolonged healing time. The microscopic perfection of temporal bone surgery is a primary requisite for good end results.

The primary skin graft is advocated because of the advantages of a single surgical procedure. The delayed or secondary skin graft may be physiologically more advisable, but the high incidence of take in the primary skin graft makes this secondary procedure unnecessary. The author's experience in 500 fenestration operations, 100 modified-radical and radical mastoidectomies and in facial nerve repairs and other complications will be analyzed.

The author's technic in the application of the primary split-thickness skin graft will be demonstrated by kodachrome slides.

Again, the end result of otologic surgery is not greatly altered by the skin graft; however, the desired end result is usually obtained more promptly.

3:35 p.m.

THE USE OF SKIN GRAFTS IN RHINOLOGY AND LARYNGOLOGY

William C. Huffman, M.D.
Iowa City, Iowa

Discusser:

Edgar Holmes, M.D.
Boston, Mass.

Principles of skin grafting apply in every part of the body, whether the graft is used for surface covering or internal lining.

The thickness of a skin graft depends upon its use to cover a clean or infected surface. The one great requirement for a successful "take" is the maintenance of contact between all parts of the graft and its recipient bed until blood supply has been well established.

Illustrative cases of various types of skin grafts about the head and neck are presented.

3:55 p.m.

THE EVALUATION OF HEARING IN PRESCHOOL CHILDREN WHO LACK NORMAL SPEECH
(A Motion Picture)

Hollie E. McHugh, M.D.
Montreal, Que., Canada

4:25 p.m.

COULD THIS BE YOU?
A MOCK COMPENSATION TRIAL PRESENTED BY THE COMMITTEE ON CONSERVATION OF HEARING

SECTION ON OPHTHALMOLOGY

Thursday, September 23, 1954

9:00 a.m.

GRAND BALLROOM

Presiding Officer:
FRANCIS HEED ADLER, M.D.
Vice-President

Secretary:
KENNETH L. ROPER, M.D.

INFANTILE GLAUCOMA SECONDARY TO NAEVO-XANTHO-ENDOTHELIOMA
(A Clinicopathologic Case Report)

Theodore E. Sanders, M.D.
St. Louis, Mo.

W. G. Klingberg, M.D.
St. Louis, Mo.

COLLABORATION

H. G. Slaughter, M.D.
Evansville, Ind.

Naevo-xantho-endothelioma is a disease, usually of infants, which is characterized by a few scattered discrete yellow papules usually found on the head and neck. The disease itself is quite rare, there being only one other case of intraocular involvement in the literature. It is quite possible that such involvement is not so rare, and in any case where there is spontaneous anterior chamber hemorrhage in an infant or glaucoma with iris changes, the skin should be searched for the presence of yellow papules.

9:05 a.m.

PRESENTATION OF NEW INSTRUMENTS

9:20 a.m.

SYMPOSIUM: CONGENITAL GLAUCOMA

Pathogenesis of Congenital Glaucoma
Robert N. Shaffer, M.D.
San Francisco, Calif.

Clinical Courses and Other Types of Surgery
Harold G. Scheie, M.D.
Philadelphia, Pa.

Goniotomy
Otto Barkan, M.D.
San Francisco, Calif.

Results in Congenital Glaucoma
Joseph S. Haas, M.D.
Chicago, Ill.

Review, Summary and Conclusions
Samuel J. Meyer, M.D.
Chicago, Ill.

10:55 a.m.

RECESS

11:00 a.m.

FAMILIAL PRIMARY HYPOPLASIA OF THE ORBITAL MARGIN

Alberto Urrets-Zavalia, Jr., M.D.
Cordoba, Argentina

Discusser:

Harold F. Falls, M.D.
Ann Arbor, Mich.

A rare developmental cranio-facial disorder of a high familial incidence is presented, the main features of which are (1) a marked agenesia of the orbital rim, (2) a lacrimal anomaly and (3) an atrophy of the tarsal plates and of the skin of the lids. A high amount of hyperopia is frequently present, as well as a periodic esotropia of a purely accommodative type.

A faulty development of the visceral mesoderm which differentiates into the orbital osseous scaffolding is considered responsible for this malformation; the ectodermic errors would be brought about by the same noxious influence, afflicting the embryo at an early stage. The large amounts of hyperopia often encountered result from a failure of the paraxial mesoderm which encircles the optic cup to respond properly to the stimulus represented by the growth of the retina.

The condition is clearly transmissible as a dominant, most penetrating character, as shown by the pedigrees of two identically affected families. Only minor quantitative and qualitative variations in the effect of the mutated gene were recorded (fairly constant **expression** and **specificity**).

Differential diagnosis is considered, especially with respect to slight forms of Crouzon's craniofacial dysostosis, to Franceschetti's mandibulofacial dysostosis and to familial primitive hypoplasia of the maxillas as described by Villaret and Desoille. The possible relationships with the so-called "syndrome du premier arc" (Francois) are discussed.

11:30 a.m.

RESECTION OF LEVATOR VIA EXTERNAL ROUTE (A Motion Picture)

Brendan D. Leahey, M.D.
Lowell and Boston, Mass.

A horizontal incision is made through the skin and orbicularis 9 mm. above the lid margin. Scissors dissection is carried down to the tarsal plate. A small opening is made on each side of the levator muscle completely through the lid and conjunctiva. A strabismus hook is passed under the muscle and conjunctiva. Three 4-0 catgut lock sutures are placed in the muscle and about 8 mm. of muscle is excised from the tarsus to just below the sutures. Some conjunctiva is excised with the lower part of the muscle. Each arm of the three double-armed lock sutures is inserted in the tarsal plate and tied. Three stay sutures of 5-0 black silk are inserted through rubber buttons from 3 mm. above the line of the eyelashes to 3 mm. above the eyebrow, but are not tied until skin sutures are completed.

The skin incision is closed with interrupted sutures, two of which are deeply placed and include some fibers of the advanced levator muscle to prevent redundant skin fold. The stay sutures are pulled tight and tied, adjusting the lid in exactly the proper position. These sutures markedly increase the effect of the levator resection. Because of this, a 10 mm. resection is enough for even a very extreme ptosis. The procedure is simple and leaves no visible scarring.

11:45 a.m.

THE MULTIPLE PATTERN METHOD OF VISUAL FIELD EXAMINATION

David O. Harrington, M.D.
San Francisco, Calif.

Discussers:

Frank B. Walsh, M.D.
Baltimore, Md.

John W. Henderson, M.D.
Ann Arbor, Mich.

A new method of visual field examination is demonstrated consisting of a flash presentation of simple patterns to the fixing eye.

The patterns are printed in white luminescent ink on white cards and become

visible when exposed to a flash of ultraviolet (blacklight) radiation. Portions of these patterns are undetected by the subject with a visual field loss, and the patterns are so designed as to delineate specific types of visual field defect. The method is comparable to the Ishihara color test in that it is qualitative, rapid, and may be used by untrained technicians. It is of particular value as a screening device which allows the visual field examination to be extended to large numbers of people. The equipment is simple, portable and inexpensive.

A large number of normal individuals have been tested by the method, and the results of these tests will be described. A great variety of visual field defects have been examined by the method and the results of these examinations will be presented along with comparative field studies. The method has been found to complement and greatly extend the usefulness of standard methods of perimetric examination, and in a few instances has even demonstrated a superiority over these standard methods in the detection of defects in visual fields.

Typical case reports with comparative visual field studies will be presented.

SECTION ON OTOLARYNGOLOGY

Thursday, September 23, 1954

2:00 p.m.

GRAND BALLROOM

Presiding Officer:
THEODORE E. WALSH, M.D.
Vice-President

Secretary:
LAWRENCE R. BOIES, M.D.

NECK ROENTGENOGRAMS IN THE DIAGNOSIS OF ESOPHAGEAL CANCER

Lewis L. Hass, M.D.
Bernard Baker, M.D.
Chicago, Ill.

BY INVITATION

The customary roentgen examination usually underestimates the extension of esophageal carcinoma. Information usually given is only about the luminal involvement and length of the luminal lesion. In determining the intramural and extra-esophageal extension, other neglected direct roentgen signs offer great help. These signs are also frequently visible on plain films of the neck and chest exposed without barium filling of the esophagus. Neck roentgenograms are very valuable aids in diagnosing lesions of the cervical and upper thoracic segment, by observing (1) the hypopharyngeal structures, (2) the prevertebral soft tissues, and (3) the soft tissue shadow of the tumor itself. The related observations may significantly alter surgical indications and planning of surgical and radiation procedures, and may also help in determining progression and regression of the disease.

2:20 p.m.

A ONE-STAGE OPERATION FOR THE RADICAL RESECTION OF THE CERVICAL ESOPHAGUS, LARYNX, PHARYNX, AND LATERAL NECK WITH IMMEDIATE RECONSTRUCTION (A Motion Picture)

John J. Conley, M.D.
New York, N. Y.

This operation has been devised with the expectation and hope that the radical excisional phases of cancerous surgery in the pharynx, larynx, esophagus and neck may be combined with the immediate one-stage reconstruction of these passages. In the past the reconstruction of this wound was carried out over an interval of one to two months by multiple surgical procedures. The surgical principles applied to these multi-stage technics are well established and well accepted, and the end result justifies their use. On the other hand, the extent of morbidity, the increased number of surgical procedures, the inconvenience to the patient of having a pharyngostome and esophagostome in the neck with saliva constantly running freely leaves considerable to be desired. The principle of interoral skin grafting was applied to this area. The technic consisted of the implantation of a thick, split, free skin graft, inverted and tubed over a stent or mold. This graft was deftly anastomosed to the pharyngeal and esophageal mucosa. Postopera-

tive stenosis requiring dietary bougienage has been the prime deterrent to the technic. This problem has been overcome in the main by permitting the indwelling stent to remain in the newly reconstructed areas until the period of scar tissue contracture has passed.

2:50 p.m.

RETROHYOID RADICAL NECK DISSECTION FOR TUMORS OF THE ORAL CAVITY

Joel J. Pressman, M.D.
Los Angeles, Calif.

Discusser:

Arnold J. Kremen, M.D.
New York, N. Y.
BY INVITATION

This paper deals with the problem of radical neck dissection for cancer of the oral cavity from the standpoint of the anatomic distribution of the cervical lymphatics. The author holds that widely practiced technics have not adequately provided for the care of all potential routes of dissemination.

The retrohyoid radial neck dissection is designed to include resection of such lymphatics about the midline of the neck as are often disregarded.

3:20 p.m.

TECHNICS IN WIDE FIELD LARYNGECTOMY
(A Motion Picture)

Walter P. Work, M.D.
San Francisco, Calif.

This film deals with the surgical technics in wide field laryngectomy in detail: (1) in the anatomical laboratory and, (2) in the surgical amphitheater. It is designed primarily for teaching purposes, which accounts for the film being presented in two parts.

4:10 p.m.

CURRENT TRENDS IN RADIOTHERAPY OF HEAD AND NECK CANCER

James E. Coyle, M.D.
and
Samuel L. Balofsky, M.D.
BY INVITATION
Detroit, Mich.

Discusser:

Maurice Lenz, M.D.
New York, N. Y.
BY INVITATION

This paper deals with certain fundamentals of irradiation therapy with particular reference to the problems seen in carcinoma of the head and neck structures. Emphasis is placed upon the newer modalities of therapy, the indication for each method, its potentialities in view of the location and type of lesion and comparison with older conventional types of therapy. The necessity for individualization of therapy methods is brought out, as well as the need for extremely close cooperation between the otolaryngologist and the radiotherapist in dealing with head and neck cancer.

4:30 p.m.

RESECTION OF THE SUPERIOR MAXILLA
(A Motion Picture)

James A. Harrill, M.D.
and
John R. Ausband, M.D.
BY INVITATION
Winston-Salem, N. C.

Discusser:

Jerome A. Hilger, M.D.
St. Paul, Minn.

This picture illustrates in color the various steps in the procedure of radical resection of the superior maxilla for carcinoma of the maxillary sinus. The utilization of primary split-thickness skin graft to the operative area is shown.

Slides showing the salient features of the operative procedure, postoperative results, oral and facial prostheses will be shown.

SECTION ON OPHTHALMOLOGY

Friday, September 24, 1954

9:00 a.m.

GRAND BALLROOM

Presiding Officer:
DOHRMANN K. PISCHEL, M.D.
Vice-President

Secretary:
KENNETH L. ROPER, M.D.

INTRAOCULAR EXTENSION OF EPIBULBAR SQUAMOUS CELL CARCINOMA
(A Clinicopathologic Case Report)

J. Jackson Stokes, M.D.
Atlanta, Ga.

Intraocular extension of a limbal squamous cell carcinoma, an extremely rare occurrence, followed excision of the original lesion.

9:05 a.m.
PRESENTATION OF NEW INSTRUMENTS

9:25 a.m.
SYMPOSIUM: OCULAR ALLERGY

In cooperation with the American Society of Ophthalmologic and Otolaryngologic Allergy, A. D. Ruedemann, Sr., M.D., President.

Ocular Allergy from the Allergist's Point of View
George L. Waldbott, M.D.
Detroit, Mich.
BY INVITATION

Laboratory Studies in Ocular Allergy

S. Albert Hanser, M.D.
St. Louis, Mo.

Differential Diagnosis of External Diseases on an Allergic Basis

Frederick H. Theodore, M.D.
New York, N.Y.

The Use of Drugs in the Treatment of Allergic Eye Diseases

Erling W. Hansen, M.D.
Minneapolis, Minn.

11:00 a.m.
GONIOTOMY
(A Motion Picture)

Otto Barkan, M.D.
San Francisco, Calif.

11:15 a.m.
A PLEA FOR THE BEST POSSIBLE PRE-INDUCTION PHYSICAL EXAMINATION

Forrest J. Pinkerton, M.D.
Honolulu, Hawaii

Studies indicate that too many inductees in the Armed Forces are awarded compensation payments and pensions for pre-induction defects which are totally unrelated to their military service. Careless induction physical examinations and poorly recorded results of those examinations on the personal record of the individual are the greatest handicaps to the boards in properly evaluating the physical or compensation status of those discharged from military duty.

11:30 a.m.
RECONSTRUCTION OF NEW LOWER LID FOLLOWING ENTIRE REMOVAL FOR CARCINOMA OF LOWER LID
(A Motion Picture)

Wendell L. Hughes, M.D.
Hempstead, N. Y.

SPECIAL SCIENTIFIC PROGRAMS

TEACHERS' SECTION — OTOLARYNGOLOGY

Grand Ballroom

Sunday, 10:00 a.m.

GORDON D. HOOPLE, M.D., *Chairman*

Presentation of a Teaching Medium
Irvin Hantman, M.D., Washington, D. C.

Shortage of Candidates for Otolaryngologic Residencies
Lester Brown, M.D., Atlanta, Ga.
James W. McLaurin, M.D., Baton Rouge, La.

Evaluation of the Three-Year Otolaryngologic Residency
LeRoy A. Schall, M.D., Boston, Mass.

Residency Training from the Viewpoint of the American Board of Otolaryngology
Dean M. Lierle, M.D., Iowa City, Iowa

TEACHERS' SECTION — OPHTHALMOLOGY

Sert Room

Sunday, 10:00 a.m.

A. D. RUEDEMANN, M.D., *Chairman*
SYMPOSIUM: TEACHING OF OCULAR PATHOLOGY

The Teaching of Pathologic Laboratory Technic for Ophthalmology
Georgiana Dvorak Theobald, M.D., Oak Park, Ill.

Interest in Ophthalmic Pathology
Algernon B. Reese, M.D., New York, N. Y.

Clinical Methods of Teaching Eye Pathology
Jonas S. Friedenwald, M.D., Baltimore, Md.

Special Laboratory Studies in Ophthalmic Pathology
John E. L. Keyes, M.D., Cleveland, Ohio

Progress in Ophthalmic Pathology
Everett L. Goar, M.D., Houston, Texas

How Interest in Eye Pathology Can Be Stimulated and Maintained
Theodore E. Sanders, M.D., St. Louis, Mo.

COMMITTEE ON CONSERVATION OF HEARING
and
OTOSCLEROSIS STUDY GROUP DIVISION

Grand Ballroom

Roosevelt Hotel

Sunday, 8:00 p.m.

THEODORE E. WALSH, M.D.
DEAN M. LIERLE, M.D.
Co-Chairmen

Deafness from Lesions of the Cochlear Nerve: A Clinical and Experimental Study
Harold F. Schuknecht, M.D., Detroit, Mich.

In Vitro Studies of Bone from the Developed Otic Capsule
Merle Lawrence, Ph.D., Ann Arbor, Mich.
BY INVITATION

Surgical Remobilization of Inner Ear Fluids for the Improvement of Hearing in Middle Ear Deafness
Julius Lempert, M.D., New York, N. Y.

The Results of a Two-Year Demonstration of the Hearing Conservation Program in the Chicago Public Schools

Mary L. Thompson, Chicago, Ill.
BY INVITATION

INDUSTRIAL OPHTHALMOLOGY

Jansen Suite

Sunday, 8:00 p.m.

A. D. RUEDEMANN, M.D., *Chairman*

A Panel Discussion to be arranged by members of the Joint Committee on Industrial Ophthalmology.

AMERICAN ORTHOPTIC COUNCIL
and
AMERICAN ASSOCIATION OF ORTHOPTIC TECHNICIANS

Empire Room

Sunday, 8:00 p.m.

WALTER H. FINK, M.D.
President

FRANK D. COSTENBADER, M.D.
Secretary

SYMPOSIUM: STRABISMUS SURGERY AND ORTHOPTICS

PANEL:

J. Ringland Anderson, M.D., Melbourne, Australia
BY INVITATION

Edmond L. Cooper, M.D., Detroit, Mich.
Nancy Capobianco, New York, N. Y.
Lorna Billinghurst, Cambridge, England
BY INVITATION

COMMITTEE ON PLASTIC AND RECONSTRUCTIVE SURGERY

Sert Room

Tuesday, 8:00 p.m.

JOHN MARQUIS CONVERSE, M.D.
WENDELL L. HUGHES, M.D.
Co-Chairmen

Spastic Entropion
Frederick A. Wies, New Haven, Conn.
BY INVITATION

DISCUSSERS:
Byron Smith, M.D., New York, N. Y.
Donald C. McFarlane, M.D., London, Ont., Canada

Tumors Involving the Lids and Immediate Conjunctiva: Practical Considerations

Merrill J. Reeh, M.D., Portland, Ore.

DISCUSSER:
Charles E. Iliff, M.D., Baltimore, Md.

Implants in Nasal Plastic Surgery: A Panel Discussion

PANEL:
John Marquis Converse, M.D., Moderator, New York, N.Y.
Oscar J. Becker, M.D., Chicago, Ill.
Lyndon A. Peer, M D., Newark, N. J.

MOTION PICTURES

Empire Room

Thursday, 8:00 p.m.

THEODORE E. WALSH, M.D., *Chairman*

KENNETH L. ROPER, M.D., *Secretary*

The Embryology of the Ear
Committee on Study of Audio-Visual Instruction

Franz Altmann, M.D., Consultant
New York, N. Y.

The Long Cane
Veterans Administration

AMERICAN SOCIETY OF OPHTHALMOLOGIC and OTOLARYNGOLOGIC ALLERGY

A. D. RUEDEMANN, M.D.
President

MICHAEL H. BARONE, M.D.
Secretary

Grand Ballroom
Friday, 9:00 a.m.

The Society will meet jointly with the Section on Ophthalmology of the Academy. For the program, see Scientific Sections, p. 632.

Sert Room

Friday, 2:00 p.m.

PANEL DISCUSSIONS ON OTOLARYNGOLOGIC ALLERGY

I. *Respiratory Allergy*
- a. Nose and Paranasal Sinuses
- b. Bronchology in Allergy

PANEL:
French K. Hansel, M.D., St. Louis, Mo.
George E. Shambaugh, Jr., M.D., Chicago, Ill.
Joseph L. Goldman, M.D., New York, N. Y.
Francis W. Davison, M.D., Danville, Pa.
Walter H. Maloney, M.D., Philadelphia, Pa.

II. *Allergy in Otology*
- a. External Ear
- b. Middle Ear
- c. Internal Ear

PANEL:
Howard P. House, M.D.
Los Angeles, Calif.
Eugene L. Derlacki, M.D.
Chicago, Ill.
Kenneth L. Craft, M.D.
Indianapolis, Ind.
Henry L. Williams, M.D.
Rochester, Minn.
Hugh A. Kuhn, M.D.
Hammond, Ind.

III. *Treatment of Allergy*
- a. Symptomatic: Drugs, Endocrine, Psychosomatic
- b. Specific: Avoidance and Elimination; Injection Therapy
- c. Surgical: (1) Nose, (2) Paranasal Sinuses, (3) Tonsils and Adenoids

PANEL:
Francis L. McGannon, M.D.
Lakewood, Ohio
Rea E. Ashley, M.D.
San Francisco, Calif.
Aubrey G. Rawlins, M.D.
San Francisco, Calif.
Joseph W. Hampsey, M.D.
Pittsburgh, Pa.
Francis L. Weille, M.D.
Boston, Mass.
French K. Hansel, M.D.
St. Louis, Mo.

SCIENTIFIC EXHIBITS

KENNETH L. ROPER, M.D., *Chairman*
EUGENE L. DERLACKI, M.D., *Co-Chairman*
Chicago, Ill.

LOCATIONS:
Regency Suite
Lexington Avenue Foyer
East Foyer Balcony
First Balcony, Grand Ballroom
Second Balcony, Grand Ballroom
Crane Suite, 4 V and Foyer

REGENCY SUITE

Exhibit R-1
Historical Sources of Ophthalmology

ELIOTT B. HAGUE, M.D., Millard Fillmore Hospital, Buffalo, N. Y.

Books dating from the XIII Century, with suitable explanatory material, exhibiting the major sources of ophthalmologic knowledge, grouped to show the development of a scientific phase of our science, or to show certain particularly national contributions, will be displayed.

Exhibit R-2
Ophthalmological Books

ALEXANDER JOKL, M.D., Johannesburg, South Africa (by invitation)

The books have been chosen for their age, for their importance in the history of ophthalmology, to show beautiful plates, or other interesting features.

Exhibit R-3
Albrecht von Graefe: Memorabilia

EGON V. ULLMANN, M.D., Portland, Ore. (by invitation). On behalf of the Deutsche Ophthalmologische Gesellschaft (Courtesy of Dr. E. Engelking).

Photographs:
1. Graefe's famous clinic
2. Graefe operating
3. Graefe's death mask
4. Bronze cast of Graefe's hand

LEXINGTON AVENUE FOYER

Exhibit F-1
Specific Clinico-Pathologic Types of Granulomatous Inflammation

LORENZ E. ZIMMERMAN, M.D. (by invitation); MAJOR JOHN H. BICKERTON, USAF (MC), and HELENOR CAMPBELL FOERSTER, Registry of Ophthalmic Pathology, Armed Forces Institute of Pathology, Washington, D. C.

The exhibit will demonstrate that specific types of granulomatous inflammation fall into two groups. One of these includes the various infectious diseases in which the specific etiologic agents are demonstrable in the tissues by histopathologic or microbiologic technics (bacteria, fungi, protozoa, and helminths). The other group includes those entities in which the diagnosis is based on a combination of a typical clinical syndrome and characteristic histopathologic changes (sarcoidosis, rheumatoid diseases, sympathetic ophthalmia, etc.).

Exhibit F-3
Clinical and Experimental Studies on Oxygen in Retrolental Fibroplasia

ARNALL PATZ, M.D., District of Columbia General Hospital and Armed Forces Institute of Pathology, Washington, D. C.

A. Clinical: Charts and graphs based on data collected in a controlled 3-year nursery study establish clearly the role of high O_2 concentration in the development of retrolental fibroplasia.

B. Experimental: Colored photomicrographs illustrate the experimental production of the typical lesions of retrolental fibroplasia in the mouse, rat, kitten, and dog by high concentration of oxygen. Slides comparing control and oxygen treated animals are presented.

Exhibit F-4

Industrial Ophthalmology

A. D. RUEDEMANN, M.D., Chairman, Joint Committee on Industrial Ophthalmology

Kodachromes of chemical burns and physiology involved. Descriptive material demonstrating need of sterile eye solution, with special emphasis in industry. Descriptive material with reference to eye protection. The industrial team.

Exhibit F-5

A New Technic for Goniophotography

SEYMOUR GOODSTEIN, M.D., ALFONSE A. CINOTTI, M.D., MORTIMER R. CHOLST, M.D., and JOHN O. GOELLER (by invitation), New York Eye and Ear Infirmary, New York, N. Y.

A description of a new technic for goniophotography, with a demonstration of the method, and an exhibition of photographs of various chamber angles, both normal and abnormal.

Exhibit F-6

The Cleft Palate Program of the Plastic Surgery Clinic of the New York Hospital-Cornell Medical Center

THE NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC., Chicago, Ill.; NEW YORK CITY SOCIETY FOR CRIPPLED CHILDREN, and PLASTIC SURGERY CLINIC OF THE NEW YORK HOSPITAL-CORNELL MEDICAL CENTER, New York, N. Y.

This exhibit portrays the program for the complete habilitation of children crippled at birth with cleft lip and cleft palate. Surgery for closure of cleft lip immediately after birth is followed by the integrated work of plastic surgeons, pediatricians, dental surgeons, orthodontists, speech therapists, social workers, and child psychologists, through the years to young adult life, and toward the goal of acceptable speech, good dentition and wholesome development of personality.

EAST FOYER BALCONY

Exhibit F-7

Orthoptics and Strabismus Surgery

ELECTRA HEALY, President, American Association of Orthoptic Technicians

Statistical results of (1) surgery without orthoptics, (2) surgery with orthoptics, and (3) orthoptics without surgery. A complete outline of presurgical orthoptic procedures (and technics). Also a complete outline of postsurgical orthoptic technics. This exhibit will be in three administrative languages of the International Congress: English, French and Spanish.

Exhibit F-8

American Board of Ophthalmology

EDWIN B. DUNPHY, M.D., Secretary, American Board of Ophthalmology, Cape Cottage, Maine

The seal of the Board to be displayed, together with placards showing the purposes of the Board and the societies from which the twelve members of the Board are elected.

Exhibit F-9

Certain Aspects of the Vascular Anatomy of the Eye

KENNETH CULLEN WYBAR (by invitation), Department of Pathology, Institute of Ophthalmology, London, England

The following anatomical features of the ocular circulation are demonstrated in casts of the vessels prepared by the intravascular injection of Neoprene latex or India ink:

1. The segmental distribution of the choroidal arteries and the nature of the anastomoses between the posterior and recurrent choroidal arteries at the equator.
2. The veins of the choroid.
3. The regional variation of the choriocapillaris.
4. The nature of the arterial and venous uveo-retinal anastomoses in the optic nerve head.

Exhibit F-10

Changing Problems in Prevention of Blindness

FRANKLIN M. FOOTE, M.D. (by invitation), VIRGINIA SMITH BOYCE (by invitation), C. EDITH KERBY (by invitation), National Society for the Prevention of Blindness, Inc., New York, N. Y.

The results of statistical studies through charts, graphs and illustrations show effectiveness of prevention of blindness to date as well as the continuing need for research, education and services to effect an over-all reduction in the incidence of blindness.

FIRST BALCONY, GRAND BALLROOM

Exhibit A-1

Your Ear and Noise

HOWARD P. HOUSE, M.D., Chairman, Sub-Committee on Noise in Industry of the Committee on Conservation of Hearing

This exhibit brings the otolaryngologist up to date regarding the problem of noise-induced hearing loss, briefly describing the noise and its measurement, the location and measurement of the hearing loss and the principles of hearing conservation in industry.

Exhibit A-2

Tumors of the Lacrimal Gland

ARNOLD W. FORREST, M.D., IRA S. JONES, M.D., and RAYMOND L. PFEIFFER, M.D., Institute of Ophthalmology of the Presbyterian Hospital and Columbia University College of Physicians and Surgeons, New York, N. Y.

This exhibit will include photographs, roentgenograms, and photomicrographs illustrating the salient features of various types of lacrimal gland tumors.

Exhibit A-3

Ophthalmoscopic Photographs: Kodachromes

ARTHUR J. BEDELL, M.D., Albany, N. Y.

A comprehensive collection of fundus photographs representing a cross section of the ophthalmoscopic changes found in the Northeastern United States. Some are commonly seen, others are rare, and a few unique.

Eleven hundred kodachrome transparencies are arranged so that they can be studied in detail.

Exhibit A-4

The Angle of the Anterior Chamber and Related Structures: Studies by Means of Stereophotography

DAVID D. DONALDSON, M.D. (by invitation), Howe Laboratory of Ophthalmology, Harvard University Medical School and Massachusetts Eye and Ear Infirmary, Boston, Mass.

Due to its important association with certain diseases of the eye, especially glaucoma, the angle of the anterior chamber has become of considerable interest. The need for an accurate, realistic record of this region seemed apparent, and thus a method was devised of photographing the angle stereoscopically, under magnification, and in color. The angle was photographed through the Goldman gonioscope by means of a stereoscopic camera, designed by the exhibitor. This camera is primarily used for photography of the anterior segment and lens of the eye.

Exhibit A-5

Biologic Effects of Ionizing Irradiation

WALTER H. BENEDICT, M.D., and KENNETH CHRISTENBERRY, M.D., Knoxville, Tenn.; ARTHUR C. UPTON, M.D. (by invitation), Division of Biology, Oak Ridge National Laboratory, Oak Ridge, Tenn.

The human and experimental animal effects of ionizing irradiation will be shown. Pictures of gross as well as microscopic changes, amplified by charts depicting the relative incidence wherever possible, will be included. The general effects will be enumerated and examples shown, but the main emphasis will be on ophthalmological interest.

Exhibit A-6

Latent Effect of Atomic Radiation on the Eye

ROBERT M. SINSKEY, M.D. (by invitation), Durham, N. C., Armed Forces Institute of Pathology, Atomic Bomb Casualty Commission, Washington, D. C.

The general effects of the atomic bomb explosions over Hiroshima and Nagasaki are illustrated and described. Various stages of opacification of the lens of the eye as a result of radiation are illustrated. A correlation between these lens opacities and such factors as age, radiation symptoms (epilation), distance from the center of the explosion, and shielding are shown graphically. The relative importance of visual loss to the other effects of the atomic bomb is illustrated.

Exhibit A-7

Biomicroscopy of the Posterior Eye

DR. KARL HRUBY (by invitation), Second University Eye Clinic, Vienna, Austria

The technic of examination and biomicroscopic findings in the vitreous and background, with special consideration to retinal detachment, are presented by short description and various illustrations.

Exhibit A-8

Trachoma in the South African Bantu

NEIL L. MURRAY, M.D. (by invitation), Pretoria, South Africa

The exhibit consists of a number of photographs, mostly in color, showing the various stages of trachoma as seen in the South African Bantu people, among whom in certain areas it is now found to be very prevalent. This high incidence disproves the views held and frequently stated hitherto that trachoma is rare in Negro races.

Exhibit A-9

Microbiology and Its Contribution to Ophthalmology: Review of Experiences During the Last Twenty Years

DEBORAH LOCATCHER-KHORAZO, M.D. (by invitation), Institute of Ophthalmology of the Presbyterian Hospital and Columbia University College of Physicians and Surgeons, New York, N. Y.

The exhibit is designed to illustrate technics in ocular microbiology, to give information about important pathogens of the eye and to describe some data concerning the use of antibiotics. It contains directions for obtaining and examining cytologic material and describes means of identifying bacterial, fungal and viral agents of disease. Distinguishing characteristics of allergic inflammation are pictured. The exhibit is illustrated by means of charts, photographs and kodachromes.

Exhibit A-10

Herpes Zoster of the Cranial Nerves

G. SLAUGHTER FITZ-HUGH, M.D., Charlottesville, Va., and FRANCIS H. McGOVERN, M.D., Danville, Va., Department of Otolaryngology, University of Virginia Hospital, Charlottesville, Va.

This exhibit illustrates by anatomic diagrams and colored photographs of clinical cases the anatomic and clinical features of herpes zoster involving the fifth, seventh, eighth, ninth, tenth, C 2-5 cranial and upper cervical nerves.

Exhibit A-11

Aqueous Veins in Glaucoma Research

KARL W. ASCHER, M.D., Department of Ophthalmology, College of Medicine, University of Cincinnati, Ohio

This exhibit shows recent trends in glaucoma research, considering both the retention theory and the neurovascular explanation as discussed in publications by the exhibitor, his associates, and by other investigators.

Exhibit A-12

I. Stereopsis, Horopter, Corresponding Points; II. Rational Nomenclature of Visual Acuity

ARTHUR LINKSZ, M.D., New York, N. Y., and ROBERT E. BANNON (by invitation), American Optical Company, Southbridge, Mass.

There will be two sections to the exhibit. The main section deals with the physiology of stereopsis, with the horopter and corresponding retinal points and with Luneburg's geometric concept of binocularly visible space. Wire models of the horopter torus will be presented. Wire and plastic models will show the arrangement of corresponding retinal points. The frontal plane horopter and the changes of the so-called Hering-Hillebrand deviation with changing convergence will be demonstrated on "animated" models. Schematic drawings will make the observer understand adjacent horopters, retinal disparity, Panum's areas, and how their arrangement makes stereopsis possible.

In a smaller second section, Lancaster's test charts for the measurement of visual acuity will be exhibited to demonstrate the significance and the many advantages of a geometric sequence of character sizes. Suggestions will be presented for a more rational designation of visual acuity on the basis of these charts.

Exhibit A-13

Ocular Injuries in Korea

COLONEL JOHN H. KING, JR. (MC), MAJOR JOHN E. EDWARDS (MC), Ocular Research Unit, Walter Reed Army Medical Center, Washington, D. C.

This is the first demonstration of eye injuries incurred in combat in Korea. Various acute injuries to the cornea, sclera, iris, lens and posterior segment are shown. Etiological agents, such as hand grenades, land mines, and shrapnel, are depicted with the type of trauma they cause. Ocular damage is also pictured in the late stages and after treatment in some instances.

Exhibit A-14

Plastic Surgery in Ophthalmology and Otolaryngology

JOHN MARQUIS CONVERSE, M.D., and BYRON SMITH, M.D., Plastic Surgery Clinic, Manhattan Eye, Ear and Throat Hospital, New York, N. Y.

An exhibit of photographs and drawings representing technics of plastic surgery of the eye, ear, nose and throat.

SECOND BALCONY, GRAND BALLROOM

Exhibit B-1

The Paraffin Method of Embedding Eye Specimens for Microscopic Study

DAVID WEXLER, M.D., GERALD M. BRANOWER, M.D., and SYLVIA RICHARDSON (by invitation), Mt. Sinai Hospital, New York, N. Y.

The exhibit will consist of a description of the paraffin method and of kodachromes illustrating autopsy specimens and surgical specimens, including tumors. The advantages of the method will be detailed: seventeen days as opposed to three months in celloidin; better anatomic sections; greater instructional value; better staining possibilities; and the suitability of paraffin for differential staining, including the periodic acid technic. It is hoped that the demonstration will encourage physicians and technicians to do more of their work in paraffin.

Exhibit B-2a

The Total Approach to the Cleft Palate Problem

EMANUEL M. SKOLNIK, M.D., and STAFF OF CLEFT PALATE CENTER, Chicago Professional Colleges, University of Illinois, Chicago, Ill.

This is designed to bring to the attention of otolaryngologists the progress in habilitation of the cleft palate patient

during the past six years, as studied by the Cleft Palate Center at the University of Illinois. It will include models, photographs and a complete resume of the research work performed at the Center. The classification of various types of clefts and criteria for treatment will be presented.

Exhibit B-2b

Diseases of the Eardrum: New Technics for Teaching Ear Diseases; A New Ear Manikin

IRVIN HANTMAN, M.D., Episcopal Eye, Ear and Throat Hospital and Georgetown University School of Medicine, Washington, D. C.

This exhibit consists of natural-colored photographs of the tympanic membrane as viewed through flesh-colored moulages of the auricle and the external ear canal. Special ear specula, into which have been mounted magnifying lenses, are used to view the tympanic membranes. The entire effect is that of examining the eardrum head through a speculum in the external canal as in real life. Each tympanic membrane is accompanied by an artist's drawing in color of that condition, with each point of interest carefully explained. Various groups of diseases are shown, including normal drum heads, acute and chronic inflammations, traumatic ruptures, secretory otitis media, with sequences depicting movement of the fluid level under various conditions and after aspiration. This exhibit should be of considerable interest to those who are interested in teaching medical students, interns and residents, and general practitioners.

A new ear manikin, which has just been designed, is presented. In it, all those interested will be able actually to perform myringotomies, aspirations of the middle ear, and removal of foreign bodies and cerumen from the external canal. This is an innovation exceedingly useful in teaching.

Exhibit B-3

Pupillography: A Diagnostic Method

OTTO LOWENSTEIN, M.D., (by invitation) Department of Ophthalmology, College of Physicians and Surgeons, Columbia University, and Institute of Ophthalmology, Presbyterian Hospital, New York, N. Y.

Demonstration of a new electronic instrument for continuous recording of pupillary diameter and reflexes. The method uses an adaptation of closed-circuit television principles and furnishes a direct writing trace of high precision. Pupillographic records are shown to demonstrate general neurophysiologic laws of autonomic reflex activity and importance of specific reflex shapes in topic diagnosis.

Exhibit B-4

Tumors of the Eyelids

OLGA M. FERRER, M.D. (by invitation), and CARLOS E. GARCIGA, M.D. (by invitation), Radium Institute, Hospital Nuestra Senora de los Mercedes, Havana, Cuba

Two hundred cases of eyelid tumors seen at the two cancer institutions of Havana from 1940 to 1950 are classified and presented with follow-ups from three to ten years. Ethnographic and climatologic factors are studied. The conclusions are shown in charts. Special attention is devoted to the clinical and pathologic aspects. Photographs and photomicrographs of the different varieties of tumors typifying each group are displayed. Radiation, electrodesiccation, surgery and combined treatments are compared and results tabulated.

Exhibit B-5

Keratectomies and Keratoplasties

RAMON CASTROVIEJO, M.D., New York Eye and Ear Infirmary, Ophthalmology Department of St. Vincent's Hospital, and New York University Post-Graduate School of Medicine, New York, N. Y.

Brief history of keratectomies and keratoplasties in drawings. Instruments and technics of keratectomies and keratoplasties (partial lamellar, partial penetrating, total lamellar and total penetrating) in drawings. Preoperative and postoperative photographs in colored transparencies of keratectomies and keratoplasties. Histology of the corneal graft in colored transparencies.

Exhibit B-6

Connective Tissue Degeneration in the Chamber Angle

C. C. TENG, M.D., (by invitation), R. TOWNLEY PATON, M.D., and HERBERT M. KATZIN, M.D., The Eye Bank for Sight Restoration, Inc., New York, N. Y.

Connective tissue degeneration in the chamber angle is offered as an explanation for the increased resistance to the outflow of aqueous in wide angle glaucoma. From a histologic study of two thousand "normal" eyes, this degeneration has been shown in the region of the trabeculae, Schlemm's canal, and the exit-collecting canals. The pathologic changes alter the normal anatomy and obstruct drainage spaces. These changes are demonstrated in over 5 per cent of senile eyes as well as eyes with early wide angle glaucoma.

Exhibit B-7

Intranasal Hydrocortisone in Allergic Rhinitis

LOUIS EDWARD SILCOX, M.D., and THOMAS FLYNN, M.D. (by invitation), Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pa.

This exhibit demonstrates by use of enlarged intranasal photographs the effect of solutions of hydrocortisone, alone and in combination with other drugs, sprayed intranasally in patients with acute and chronic allergic rhinitis. The effect on nasal polyps is also illustrated. Graphs are used to show the number of patients improved in seasonal as well as perennial allergic rhinitis and nasal polyposis. There are charts describing the rationale of this type of therapy.

Exhibit B-8

Behcet's Syndrome: Aphthosis

HELEN OLLENDORFF CURTH, M.D., (by invitation), Department of Dermatology, College of Physicians and Surgeons, Columbia University, New York, N. Y.

Charts, posters and photographs will deal with the syndrome, which is a systemic disease characterized by recurrent attacks of oral and genital aphthous lesions and uveitis with hypopyon. The ocular disease leads to blindness in both eyes. The three classic signs of the disorder, as well as other manifestations such as thrombophlebitis, nervous and cutaneous changes and a characteristic cutaneous response to provocation, will be described. The etiology and treatment of the disorder and the differential diagnosis of diseases combining ocular and cutaneous manifestations will be discussed.

Exhibit B-9

Clinical Electroretinography (ad modum Karpe)

PROFESSOR GOSTA KARPE (by invitation), Ophthalmological Department, University Eye Clinic, Karolinska Hospital, Stockholm, Sweden

Photos and charts of the method of recording the electroretinogram which has been developed at Karolinska Hospital, Stockholm, Sweden, and is used there as a routine method of examination. Experiences with more than three thousand examinations of the electrical potentials of normal and diseased eyes are briefly summarized.

Exhibit B-10

Home Study Courses, American Academy of Ophthalmology and Otolaryngology

DANIEL SNYDACKER, M.D., Secretary, Chicago, Ill., and BEN H. SENTURIA, M.D., Associate Secretary, St. Louis, Mo., Home Study Courses, American Academy of Ophthalmology and Otolaryngology

This exhibit will show the faculties, organization, scope and purposes of the Home Study Courses.

Exhibit B-11

Chorioretinal Lesions Due to Thermal Radiation from Atomic Bombs

COLONEL VICTOR A. BYRNES, USAF (MC), and CAPTAIN D. V. L. BROWN, USAF (MC) (by invitation), H. W. ROSE (by invitation), PAUL A. CIBIS (by invitation), School of Aviation Medicine, Randolph Field, Texas

This exhibit will consist of a series of 8 x 10 inch color transparencies demonstrating the mechanism, ophthalmoscopic appearance, and pathology of chorioretinal lesions due to thermal radiation from atomic bombs. The experiments were performed during actual atomic explosions. Burns were found at distances up to 42 miles.

Exhibit B-12

Visual Aids in Ophthalmology

DAN M. GORDON, M.D., and CHARLES RITTER (by invitation), New York Hospital, Cornell University Medical Center, and American Foundation for the Blind, New York, N. Y.

This exhibit will feature the widest possible variety of magnifying devices, including their practical application.

Exhibit B-13

The Doctor: How He Can Help the Newly Blind Patient and the Parents of Blind Babies

HELEN KELLER (by invitation), M. ROBERT BARNETT (by invitation), and KATHERN F. GRUBER (by invitation), American Foundation for the Blind, Inc., New York, N. Y.

Literature exhibited will give information concerning rehabilitation services available, help for parents of blind babies, attitudes toward blindness, tools and aids for the blind, etc.

CRANE SUITE

Exhibit C-1
Tonometry

PETER C. KRONFELD, M.D., Chairman of the Committee on Standardization of Tonometers, American Academy of Ophthalmology and Otolaryngology.

Exhibit C-2
Tonography

PETER C. KRONFELD, M.D., Chairman of the Committee on Standardization of Tonometers, American Academy of Ophthalmology and Otolaryngology.

TECHNICAL EXHIBITORS — 1954

Exhibitor	Booth No.
Alcon Laboratories, Inc.	117
The Alkalol Co.	5
Allied Instrument Manufacturers, Ltd.	98
American Cystoscope Makers, Inc.	97
American Optical Co.	93 thru 96
American Tobacco Co.	23 & 24
Armco Mercantile Co.	14
Audiometer Sales Corp.	60
Audivox, Inc.	3
Barnett Optical Laboratories	25 & 26
Bausch & Lomb Optical Co.	82 thru 85
Beltone Hearing Aid Co.	4
The Blakiston Co.	13
Broemmel Pharmaceuticals	87
Brown & Williamson Tobacco Corp.	48 & 91
Burroughs Wellcome & Co.	120
George H. Butterfield & Son	61
Cameron Surgical Specialty Co.	92
Carroll Dunham Smith Pharmacal Co.	33
Ciba Pharmaceutical Products, Inc.	34
The Coca-Cola Co.	70
Cochrane Physicians' Supplies, Inc.	37
Codman & Shurtleff, Inc.	63
Coreco Research Corp.	89
Davis & Geck	76
The DeVilbiss Co.	20
Doho Chemical Corp.	65 & 66
Eaton Laboratories, Inc.	75
Grand Central Camera Exchange, Inc.	27 & 28
Grason-Stadler Co.	8
Grieshaber Swiss Eye Instruments	127
Grune & Stratton, Inc.	122
Haag-Streit, Ltd.	58 & 59
Anton Heilman	107
Paul B. Hoeber, Inc.	116
Hollister-Stier Laboratories, Inc.	101
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TECHNICAL EXHIBITS

The Academy is appreciative of the cooperation of all technical exhibitors.

Alcon Laboratories, Inc., Fort Worth, Texas **Booth 117**

Alcon-efrin, Alcon's nonstinging and nonirritating nasal decongestant, supplied in three strengths, will be exhibited, along with their sterile ophthalmic solutions.

DROP-TAINER (Alcon's new ophthalmic plastic dropper container from which solutions may be applied directly to the eye by inverting and applying slight pressure) will be featured.

New sterile ophthalmic solutions supplied in DROP-TAINER will be exhibited along with those supplied in the regular dropper bottle (Isopto Cetamide, Isopto Alkaline, Op-thal-zin, and Zincfrin).

The latest sterile ophthalmic solutions containing methyl cellulose supplied in DROP-TAINER will be: Isopto Carpine 1%; Isopto Carpine 2%; Isopto Eserine ½%; Isopto Homatropine Hydrobromide 2% and 5%; Isopto Atropine 1%; Isopto Phenylephrine; Isopto Hyoscine 0.25%; Isopto Pilocarpine 4%; Isopto Eucatropine 3%.

Sterile aqueous ophthalmic solutions exhibited in DROP-TAINER without Methyl Cellulose will be: Fluorescein 1%; Tetracaine ½%; Op-thal-zin and Zincfrin.

The Alkalol Company, Taunton, Mass. **Booth 5**

The Alkalol Company is featuring Alkalol, a solution especially designed for the treatment of the mucous membranes of the nose and throat.

First compounded in 1896, its balanced formula of salts and essential oils makes a solution that is effective and at the same time nontoxic, mild and pleasant. It is alkaline and a mucus solvent.

Alkalol is an excellent vehicle for many drugs. For further information please call at Booth 5.

Allied Instrument Manufacturers, Ltd., London, England **Booth 98**

A comprehensive range of modern ophthalmic instruments, including slit lamp, corneal microscope, projection perimeter, keratoscope and orthoptic apparatus.

American Cystoscope Makers, Inc., New York, N. Y. **Booth 97**

A cordial invitation is extended to members and guests of the American Academy of Ophthalmology and Otolaryngology to visit our Booth 97. Precision instruments for diagnosis and operative procedures will be on display. Included will be nasopharyngoscopes, thoracic electroresection equipment and telescopes for bronchoscopy and esophagoscopy. Representatives will be in attendance to demonstrate these instruments.

American Optical Company, Southbridge, Mass. **Booths 93 to 96**

The American Tobacco Company, Richmond, Va. **Booths 23 & 24**

The Research Laboratory of The American Tobacco Company will demonstrate a smoking machine specially designed to facilitate investigations of the properties of tobacco smoke. This machine simulates human smoking and makes possible a reproducible collection of smoke for analysis. Through basic research in this field, means have been found for the scientific selection of tobaccos and the control of quality in manufacture. The exhibit will also include samples of cigarette tobaccos, suitably labelled and described.

Armco Mercantile Co., Chicago, Ill. **Booth 14**

Magnocular—French telescopic loupe for near point magnification (2x) with absolute minimum of aberration, unusually large flat field and long focal distance. Also indicated for patients with reading difficulty even after full correction.

Omnitrainer—premier orthoptic trainer combining best features of every recognized stereographic trainer in America. Also accurate for testing visual skills.

Training for every defect, using virtually every type of stereographic target. Space-saving and economical work-horse of training and testing.

Graffe Trial Frame—of feather weight duralumin, precisely accurate and features extra cells to demonstrate bifocal arrangement of lenses.

Audiometer Sales Corp., Minneapolis, Minn. Booth 60

Audivox, Inc., Boston, Mass. Booth 3

Audivox, successor to Western Electric Hearing Aid Division, presents a line of audiometric equipment for use by the medical profession, schools, clinics, and industry. The AMA Approved 7B Pure Tone Audiometer, in portable or desk case, is equipped with calibrated white noise masking. Accessories include Speech Monitor Meter, Microphone, Bone Receiver and Speech Record Player; the latter for use through the 7B Audiometer or separately with group testing equipment. Hearing loss figures are read directly from the hearing loss dial in decibels for bone and air testing. This audiometer can be repaired and calibrated in the field, an exclusive Audivox feature.

Barnett Optical Laboratories, Chicago, Ill. Booths 25 & 26

Photographic enthusiasts are welcomed to see the newest developments in close-up cameras and equipment for clinical photography.

Headline feature of the 1954 exhibit will be the new Zeiss Contaflex camera, with single window, erect image, full field coverage, and precise vernier range finder, adapted for eye photography without need of telephoto lenses or extension tubes.

Compact electronic speed flash and sub-miniature flash bulb units, projectors, film viewers, photo accessories, and lenses will be demonstrated. Also on display will be slide libraries of eye diseases and injuries, featherweight head loupes, focal point flashlights, magnifiers, inexpensive microscopes, office lamps, and adjustable instrument and camera unit tables.

Bausch & Lomb Optical Co., Rochester, N. Y. Booths 82 to 85

In addition to the complete line of Bausch & Lomb ophthalmic instruments and equipment, a new series of diagnostic instruments will be shown for the first time. Other new instruments include the Allen-Thorpe 4-sided Gonioprism, and the new B & L Slit Lamp.

Retinal photography with the high speed Retinal Camera will be demonstrated by technical personnel from the factory.

The lens exhibit will feature the new integrated series of functional trifocals, announced recently, embodying a completely new philosophy of trifocal design based on accommodation. The cosmetically attractive, extra-thin Panoptik Lenticular Cataract bifocal will be demonstrated.

New frame and mounting styles will be shown featuring the widely publicized Bausch & Lomb theme "Function and Fashion."

Beltone Hearing Aid Co., Chicago, Ill. Booth 4

A new audiometer which will enable doctors, medical centers and hearing clinics to conduct accurate and easier to operate hearing tests developed by the Beltone Hearing Aid Company will be shown at the company's exhibit at the 59th Annual Convention of the American Academy of Ophthalmology and Otolaryngology.

The portable Beltone audiometer designed by audiometric engineer Ralph E. Allison, weighs less than 14 pounds. Containing fewer component parts, the audiometer will be easier to maintain and operate than any similar instrument. It will use only one tube and one voltage regulator, and will sell at about 25 per cent below current prices.

There will be no distracting clicking sounds when the hearing loss dial is turned. The instrument will have a calibrated masking tone, one bone conduction and two air conduction receivers for individual testing.

For group tests, an automatic equalizer eliminates the need for deducting from dial readings. Fittings for 10, 20, 30 or 40 phones are possible.

The Blakiston Company, Inc., New York, N. Y. Booth 13

Blakiston's Booth 13 will feature the New Fourth Edition of **The Anatomy of the Eye and Orbit** by Eugene Wolff, F.R.C.S., Ophthalmic Surgeon, Royal Northern Hospital, England. This famous presentation of the structure, development and comparative anatomy of the visual apparatus has been extensively revised, and many sections completely changed, to include the most recent advances in this active field. Eighty excellent illustrations have been added, bringing the total number up to 406. You will also want to examine these other important books on ophthalmology: Elwyn's **Diseases of the Retina**, New Second Edition; Lyle & Jackson's **Practical Orthoptics in the Treatment of Squint**, New Fourth Edition; and Mueller's **Ophthalmic Surgery**, Sixth Edition.

Broemmel Pharmaceuticals, San Francisco, Calif. Booth 87

Broemmel Pharmaceuticals of San Francisco, California, cordially invite you to visit their booth at the Fifty-Ninth Annual Convention of the American Academy of Ophthalmology and Otolaryngology to be held at the Waldorf-Astoria Hotel, New York City.

We will be pleased to exhibit the various fine specialty products manufactured by us for these two fields of medicine.

Our booth will be staffed by trained detail personnel ready to present these products and their applications.

It will be our pleasure to make your acquaintance.

Brown & Williamson Tobacco Corp., Louisville, Ky. Booths 48 & 91

Many members of the medical profession are showing unusual interest in KOOL (mildly mentholated) Cigarettes for which there is a wide and growing acceptance among smokers troubled with throat irritations or respiratory disorders.

Members who visit the KOOL exhibit will receive an attractive souvenir and a folder of interesting facts relating to the application of cooling menthol to tobacco.

The new King-Size VICEROY Filter Tip Cigarette gives the smoker DOUBLE THE FILTERING ACTION to double his smoking pleasure. There are 20,000 tiny filter traps in VICEROY'S new filter of pure, nonmineral ESTRON. It filters the smoke, yet draws freely and gives the smoker the full, rich taste of choice tobaccos.

An explanation of the unique advantages of VICEROY will greatly interest members and guests who visit the VICEROY exhibit.

Burroughs Wellcome & Co., Inc., Tuckahoe, N. Y. Booth 120

We will feature AEROSPORIN® OTIC SOLUTION * STERILE, which is hygroscopic, has an acid pH, and is antimicrobial, especially against Pseudomonas aeruginosa.

(*AEROSPORIN® SULFATE POLYMYXIN B SULFATE with Propylene Glycol Otic Solution Sterile.)

AERODRIN brand INTRANASAL SOLUTION, which produces local decongestion without central stimulation, and provides broad-spectrum antisepsis.

Geo. H. Butterfield & Son, Portland, Ore. Booth 61

We will display: Para-Scleral ventilated contact lenses, Para-Curve corneal contact lenses, and Para-Lite unbreakable plastic spectacle lenses, together with related tools and equipment for the adjustment of the contact lenses.

Cameron Surgical Specialty Co., Chicago, Ill. Booth 92

See the Anthony-Fisher Suction Coagulating Handle and electrodes for nasal hemorrhage; cauteradios and cauterodynes for ocular, aural, nasal and oral electrosurgery, electrocoagulation, including cyclodiathermy electrodes; the Boros Flexible Esophagoscope and Flexible Gastroscopes; electrodiagnostic lamps and instrument sets; mirror type headlites; binocular spectacle loupes; and other specialties for ophthalmology and otolaryngology.

Carroll Dunham Smith Pharmacal Co., New Brunswick, N. J. Booth 33

We will feature Lipotriad, a product with unusually potent lipotropic oxytropic principles. Our representatives will welcome the opportunity of discussing the value of Lipotriad in senile macular degeneration, diabetic retinopathy and other ophthalmic conditions.

Ciba Pharmaceutical Products, Inc., Summit, N. J. Booth 34

The CIBA exhibit will feature Pyribenzamine Hydrochloride, the antihistaminic which provides maximum allergic relief with minimal side effects. Representatives in attendance will be glad to discuss the role of Pyribenzamine Hydrochloride in the treatment of various forms of allergy.

The Coca-Cola Company, New York, N. Y. Booth 70

Ice cold Coca-Cola served through the courtesy and cooperation of The Coca-Cola Bottling Company of New York, Inc. and The Coca-Cola Company.

Cochrane Physicians' Supplies, Inc., New York, N. Y. Booth 37

Codman & Shurtleff, Inc., Boston, Mass. Booth 63

Codman & Shurtleff, Inc. will exhibit a complete line of eye, ear, nose and throat instruments.

Many new instruments for use in the various specialties will be on display.

The Conway Dermajector for use in obliteration of nevus flammeus will be shown and demonstrated.

For 116 years Codman & Shurtleff, Inc., have been manufacturers of fine surgical instruments. We invite our many friends to visit our first exhibit at this meeting.

Coreco Research Corp., New York, N. Y. Booth 89

Davis & Geck, Brooklyn, N. Y. Booth 76

The DeVilbiss Co., Somerset, Pa. Booth 20

The DeVilbiss Company, Somerset, Pennsylvania, welcomes you to its exhibit of professional and prescription types of atomizers, nebulizers and vaporizers. Three new additions to our line, the new No. 146 all-metal Vaporizer, the No. 840 Continuous Flow Nebulizer for sustained aerosol treatment, and the No. 41 Pocket Nebulizer with carrying case, will be available for evaluation.

Doho Chemical Corp., New York, N. Y. Booths 65 & 66

Doho Chemical Corporation is pleased to exhibit Auralgan, the ear medication for the relief of pain in otitis media and removal of cerumen; Rhinalgan, the nasal decongestant which is free from systemic or circulatory effect and equally safe to use on infants as well as the aged; and the NEW OTOSMOSAN, the effective, nontoxic ear medication which is fungicidal and bactericidal (gram negative-gram positive) in the suppurative and aural dermatomycotic ears.

Eaton Laboratories, Inc., Norwich, N. Y. Booth 75

The Eaton Laboratories exhibit will feature Furacin Ophthalmic Liquid, Furacin Ophthalmic Ointment, Furacin Anhydrous Ear Solution, Furacin Nasal Preparations, and Furacin Soluble Powder.

Grand Central Camera Exchange, Inc., New York, N. Y. Booths 27 & 28

Grand Central Camera Exchange, Inc. will exhibit cameras, photography equipment and supplies for medical photography. Projectors and other devices for visual education for use in colleges and hospitals, as well as the latest imported cameras will be shown.

Grason-Stadler Co., Cambridge, Mass. Booth 8

This company specializes in electronic diagnostic equipment for use by otologists and clinical audiologists and will exhibit both Speech and Pure-Tone Audiometers. Their regular line of Speech Audiometers, which offer features not available on other commercial instruments will be shown. Both semiportable and console versions are available for diagnostic and research work. Modifications can be provided to customer specifications.

The Company was organized in 1949 by personnel with an extensive background in auditory research and is exceptionally well equipped to handle development problems in the general field of audition. Representatives of the Company will welcome discussion of your requirements in detail.

Grieshaber Swiss Eye Instruments, Chicago, Ill. Booth 127

This year our exhibit again features Swiss made eye instruments by Grieshaber, world famous craftsman of sharpest ophthalmic cutting instruments and precision-made related specialties. These inimitable instruments include the exclusive Grieshaber patterns of eye knives, corneal suture needles, specialized delicate forceps and needle holders.

The corneal suture needles exhibited in our booth are the ONLY, ORIGINAL and GENUINE GRIESHABER cutting-edge needles about which you have heard such a good report! Each Grieshaber cutting-edge corneal needle is an instrument in itself. Usage will quickly verify their superlative ease in penetrating even the toughest cornea.

Attention is directed to the fact that these instruments are not mass produced, and orders must be filled in the sequence in which they are received. We therefore urge our customers to order promptly and thus ensure expeditious delivery.

Grune & Stratton, Inc., New York, N. Y. Booth 122

Our Mr. Frank Kurzer invites you to drop by Booth 122 where he will show you, among our newest titles: Wiener & Scheie's **Surgery of the Eye**, Fox's **Ophthalmic Plastic Surgery**, Tower's **Differential Diagnosis of Diseases of the Eyeground**, Wiener & Maumenee's **Progress in Ophthalmology**, Ireland & Sullivan's **Progress in Otolaryngology**, Moses' **The Voice of Neurosis**, Myklebust's **Auditory Disorders in Children**, Michal-Smith's **Pediatric Problems in Clinical Practice**, Waife's **The Doctor Writes**, Fabricant's **Why We Became Doctors**, and Burch's **Of Publishing Scientific Papers**. Many other titles, of interest both to ophthalmologists and otolaryngologists, will be on display.

Haag-Streit, Ltd., Liebefeld-Bern, Switzerland Booths 58 & 59

Two new items have been added to the HAAG-STREIT line of quality ophthalmologic equipment. First, there will be a new GOLDMANN TONOMETER, to be used with the SLIT LAMP and based on an entirely new conception of tonometry. Then a TWIN TABLE on which two instruments are constantly ready for use and are automatically turned on when the desired instrument is slid in front of the patient.

The Goldmann SLIT LAMP will be shown on a table and mounted on a stand; and also the accurate PROJECTION PERIMETER the inexpensive PFLUEGER PERIMETER and the simple JAVAL-SCHIOTZ OPHTHALMOMETER shall be displayed for your inspection.

Anton Heilman, New York, N. Y. Booth 107

ANTON HEILMAN, Fine Optical Products is displaying their complete line of ophthalmic and diagnostic instruments, which will include the well-known New Rodenstock Eye Refractometer for objective diagnosis of the total refractive error of the human eye, Vertex Refractionometer, for measuring the power of any lens, De Luxe test lens sets and trial frames; Combi, the electric ophthalmic unit and chair. Another group of outstanding instruments on display will be the Krahn Slit Lamp and binocular microscope with brilliant illumination complete with Hruby lens; Binocular Ophthalmoscope; Ophthalmometer according to Javal, all with unique construction, incorporating latest developments in optics and design. Retinal Photographic Apparatus and Perimeter with the newest in ophthalmic unit, the revolving stage that has found rapid acceptance, complete this group of exhibit. An assortment of hand ophthalmoscopes and retinoscopes, operating loupes and Amsler Charts will be on display from Hamblin, London. Diprose Hand Slit Lamp and Focal Illuminator from Stearman, with a complete selection of eye surgical instruments, including many new items are included in this exhibit.

Paul B. Hoeber, Inc., New York, N. Y.
Booth 116

At the HOEBER-HARPER Booth you will again find a complete array of outstanding books in your field. Be sure to see the following new books: Sorsby's **Modern Trends in Ophthalmology**—new third series; Hollinshead's **Anatomy for Surgeons**: Vol. I: **Head & Neck**; Ellis' **Modern Trends in Diseases of the Ear, Nose & Throat.** Other books of current interest are Reese: **Tumors of the Eye**; Samuels & Fuchs' **Clinical Pathology of the Eye**; Berliner's **Biomicroscopy of the Eye**—2 volumes; Samuel's **Clinical Radiology of the Ear, Nose & Throat** and Palmer's **The Esophagus and its Diseases.**

Hollister-Stier Laboratories, Inc., Wilkinsburg, Pa. **Booth 101**

The recognition of allergic symptoms is important in otolaryngology and the diagnosis and treatment is advanced through Hollister-Stier's completely correlated service including authoritative information—time-saving aids—clinical procedures and effective technics. File-size Pollen, Protein, Mold, and Dust folios giving information on the allergenic extracts are available on request.

Representatives will gladly discuss the various test sets for diagnosis and the therapeutic extracts including "Type 33" molds. Many accessories for office and treatment rooms are demonstrated including stain racks; histamine kits, T.O.E.; and dust kits.

Your visit is most welcome.

The House of Vision, Inc., Chicago, Ill.
Booths 68 & 69

The House of Vision will have a complete showing of the finest and latest in ophthalmic equipment—the Goldmann slit lamp and the Goldmann perimeter; the Aimark slit lamp and Aimark perimeter; the Zeiss-Opton slit lamp; a complete line of diagnostic equipment—and various orthoptic pieces will be available for your inspection. There will be several new items of great interest, such as a new "midget" ophthalmoscope with "giant" performance, and a new perimeter of unique design.

Along with this instrument display will be examples of unusual and fine lens grinding and frame styling by the House of Vision.

Ion Optical Company, Detroit, Mich.
Booth 125

The theme of our 1954 exhibit will be "The technical progress in ophthalmic eyewear since the Thirteenth Century."

This amazing story will be illustrated with a historical display which we believe will be of interest to members of the Academy.

In addition, we will have several new instruments combined with a selection of the finest frames and ophthalmic lenses.

The Iso-Sol Co., Inc., Brooklyn, N. Y.
Booth 90

The Iso-Sol Company will display its complete line of sterile, buffered, isotonic ophthalmic solutions for office, hospital, and prescription use. The background display will show laboratory scenes and manufacturing procedures.

To acquaint physicians with Iso-Sol fine products, a lucite rack with 8 sterile solutions and descriptive literature will be distributed free to ophthalmologists and hospital executives in exchange for their calling cards.

Armin Jacobs & Co., Inc., New York, N. Y. **Booth 51**

The Armin Jacobs & Company, Inc. will display ophthalmic apparatus and eye instruments; among others, the Ideal Trial frame, the Oculus and Croydon Trial frame, the Oculus opthalmoscope and filter attachment and special illumination, the modified Schweigger hand perimeter, the all stainless Schiotz Tonometer, Berens Clip-on Prisms, Berens Plastic Prism Bars, Berens Accommodation Rule, Linder opaque adjustable goggles pinhole, Berwick Lens Measure, new Luminous Inskeep Retinoscope, shockproof Lancaster eye magnets, new non-electric eye magnet, Tangent curtains, Bjerrum and Dr. Posner's Pantograph attachment for Tangent curtains, Walker ophthalmic units for retinal detachment, and a complete line of surgical eye instruments of all American-made stainless steel, eye forceps, eye knives, cystoscopes, spatulas, de Wecker and Castroviejo scissors, etc.

B. J. Florsheim Company, which will share Booth 51, will show a complete assortment of appliances and instruments for plastic and reconstructive surgery; ear, nose and throat specialties; Gomco suction pump; office autoclaves and plastic planing equipment and specialist floor and headlights.

Jenkel-Davidson Optical Co., San Francisco, Calif. Booth 88

Ophthalmic instruments and accessories designed and manufactured for the ophthalmologists exclusively. This exhibit will include the Harrington Black Light Perimeter, Black Light Tangent Screen Illuminator, J-D Clinicamera for external eye photography, gonioscopy ceiling fixture, transport transformer, and several other recently developed ophthalmic devices.

Keeler Optical Products Ltd., London, England Booth 109

There will be exhibited for the first time a new series of battery model ophthalmoscopes and retinoscopes which feature the most up-to-date mechanical and optical design. These instruments are incorporated in a series of modern-styled diagnostic sets produced specifically to American requirements.

The **"Practitioner"** is a fine new ophthalmoscope for general work. On its own, or with the Keeler Otoscope in the **Practitioner set,** it is presented in a case of resilient plastic material.

The **"Specialist"** Ophthalmoscope is introduced to meet more exacting requirements. Its many unique features promise a great future for it. The newly styled Keeler Retinoscopes, with a truly remarkable clarity of reflex, are available with the "Specialist" Ophthalmoscope in handy sized combination sets.

Other new items include the Pantoscope Telescopic Attachment and the Domiciliary Test-Type Wallet (containing washable matt-surface distance and near types with Illiterate "E's" and astigmatic fan).

In addition to the above, KEELER staff will be pleased to demonstrate other standard instruments and equipment of the KEELER Range.

Keystone View Co., Meadville, Pa. Booths 56 & 57

The Keystone View Company will exhibit and demonstrate binocular visual testing equipment and orthoptic training materials.

Kono Manufacturing Co., Woodside, N. Y. Booths 43 & 44

The Kono booth will feature in addition to the standard line of frames and devices for rare and odd fitting problems, a new frame entirely divorced from the standard concepts of today's eyewear. Daringly different, utterly unique, it is also the world's highest priced regular production frame.

Full color moving pictures of plastic frame production will be shown and fully explained.

Liberty Optical Manufacturing Co., Inc., Newark, N. J. Booth 52

The introduction of several completely new creations is scheduled by Liberty Optical Mfg. Co. for its exhibit in booth 52.

You will see among others the ever popular Broker and Par frame in new colors. Liberty will also display its beautiful line of zyl and combination frames.

J. B. Lippincott Co., Philadelphia, Pa. Booth 115

J. B. Lippincott Company presents, for your approval, a display of professional books and journals geared to the latest and most important trends in current medicine and surgery. These publications, written and edited by men active in clinical fields and teaching, are a continuation of more than 100 years of traditionally significant publishing.

P. Lorillard Co., Inc., New York, N. Y. Booths 11 & 12

P. Lorillard Company, manufacturers of OLD GOLD and EMBASSY Cigarettes as well as BRIGGS Pipe Mixture and other famous tobacco products will exhibit and demonstrate their new KENT Cigarettes with the exclusive Micronite Filter, which takes out up to 7 times more nicotine and tars than other filter cigarettes.

Mager & Gougelman, Inc., New York, N. Y. Booth 78

The Maico Co., Inc., Minneapolis, Minn. Booths 41 & 42

For 1954, Maico will feature its expanded line of medical acoustic instruments including clinical, professional and industrial audiometers, hearing aids, electronic stethoscopes and special instruments for auditory and speech training.

We will feature the new model MA-1 Professional Audiometer designed to provide the otologist with an instrument capable of conducting all important audiometric tests and examinations. This model includes accessories for recorded speech, difference-limens and white-noise generations.

Also included in Maico's exhibit will be a complete line of all-transistor hearing aids and a new miniaturized electronic stethoscope.

Medical Case History Bureau, New York, N. Y. Booth 36

INFO-DEX RECORD SYSTEM — A handy, compact method for keeping patients' complete eye, ear, nose and throat case histories is the feature here. The history charts are so arranged on folders that subsequent visit cards may be attached by means of a cotter pin which holds the cards together in correct sequence. Different colored cards for x-ray, laboratory findings, audiograms, refractions are obtainable. Included in this system is an automatic diagnostic cross-indexing. Steel filing cabinets in which to house these history charts and bookkeeping records also are displayed. Representatives at the booth will gladly consult with you on any record problem or help you systematize your office routine.

Medical Film Guild, New York, N. Y. Booth 124a

Program chairmen of all medical organizations are invited to register for free consultation service regarding audio-visual programming for national, state, county, city and hospital meetings. We have many free films available (including projection service)that will add stimulus to your meetings.

Such new and original endeavors as OCULAR BACTERIOLOGY and OCULAR BIOMICROSCOPY are available and can be previewed at our exhibit. Also available are many subjects in the field of otology.

We cordially invite Doctors who wish to broaden their teaching activities to investigate how the transposition of their lectures onto film on a budget basis can reach thousands of physicians.

Medico Instruments, Philadelphia, Pa. Booth 55

Medico Instruments cordially invites physicians to visit Booth 55. A variety of new instruments and accessories will be demonstrated for the first time. Featured among these will be PORT-A-VOLT, the all-purpose pocket-size transformer recently developed by an ophthalmologist at the Albert Einstein Medical Center. Voltage-Stabilizer and Ground-Testing Unit for use with electronic tonometers will be shown; also the Electrical Control Assembly for the Slit-Lamp Biomicroscope, for regulating the beam in fluorescein work. The latest type of wall transformer, the VOLT-MASTER, will be displayed. Trained representatives will be on hand to answer your questions.

E. B. Meyrowitz Surgical Instruments Co., Inc., New York, N. Y. Booths 118 & 119

E. B. Meyrowitz Surgical Instruments Co., Inc., will have on display a complete line of eye, ear, nose and throat instruments of our own and foreign manufacture for both surgery and diagnosis. Included will be the newly improved Troncoso Gonioscope and the Chamlin Perimeter, and electrically operated No. 1 and 2 Plastic Regan Dials.

The C. V. Mosby Co., St. Louis, Mo. Booth 123

Physicians planning to attend this year's convention of the American Academy of Ophthalmology and Otolaryngology are cordially invited to visit Booth 123, where Mosby publications will be available for leisurely examination. Whatever your book needs, any one of our representatives who will be in attendance will be glad to discuss them with you.

V. Mueller & Co., Chicago, Ill.
Booths 49 & 50

V. Mueller & Company (Chicago—Dallas—Rochester) will present a comprehensive display of fine instruments and equipment for surgery of the eye, ear, nose and throat. Included will be a number of new models of eye scissors and forceps, erisophakes and vacuum pumps, Lempert and Shambaugh fenestration instruments, instruments for nasal reconstruction, and improved laryngoscope holders. The Mueller Electronic Tonometer will be featured, as will an eye applicator for beta irradiation, and the new AS-7 Herb-Mueller Ether-Vapor-Vacuum Unit with the revolutionary new Mueller Recirculating Oil System.

Mueller Welt Contact Lenses, Inc., Chicago, Ill. Booth 77

Mueller Welt Fluidless Contact Lenses exclusively exhibited. In addition, fitting courses will be held daily at our booth at a time most convenient for the doctor, that will not interfere with his regular program. Doctors are invited to visit our booth and sign up for this course. Third dimensional slides will be shown in color showing lens-eye relationship. The course is all practical and will take no more than two hours. This is an opportunity to investigate the incorporation into your practice of a fluidless contact lens that has been clinically proven to fit 90 per cent of unscreened patients.

National Electric Instrument Co., Inc., Elmhurst, N. Y. Booth 19

Visitors to the booth of the National Electric Instrument Co., Inc., will find interest in some new items and improvements in established National instruments. Representatives have been especially chosen for their expert understanding of the National Instruments on display. Visitors are assured a friendly, interested reception at the National Booth.

Nepera Chemical Co., Inc., Yonkers, N. Y. Booth 18

The Nepera exhibit features:

Biomydrin Nasal Solution—a new nasal spray which has been reported to be "effective as an antibiotic in clearing the nose of pathogenic organisms and purulent secretions." Biomydrin contains thonzonium bromide (antibacterial, mucolytic, reduces surface tension), neomycin, gramicidin, thonzylamine hydrochloride (antihistaminic), and phenylephrine hydrochloride (vasoconstrictor).

Biomydrin Otic—for antibacterial, antifungal, and antipruritic action in otitis externa and media.

Three other preparations will be exhibited. Mandelamine, a urinary antiseptic; Neohetramine, an antihistaminic; and Choledyl, a new drug which represents a major advance in theophylline therapy.

New Jersey Optical Company, Irvington, N. J. Booth 71

Novocol Chemical Mfg. Co., Inc., Brooklyn, N. Y. Booth 6

A qualified representative will be present to tell you of the many advantages you enjoy with the use of Monocaine HCl-Epinephrine Solutions for ophthalmic otorhinolaryngic reconstructive and plastic surgery. It is the "Preferred Local" of many members of the Academy.

The Anestube (cartridge) type syringe will also be on display for your examination.

You owe it to yourself to arrange for a visit at Booth 6.

Obrig Laboratories, Inc., New York, N. Y. Booth 35

The latest developments in solutionless contact lenses will be displayed as well as diagnostic and gonioscopic lenses. Reprints of papers on the success of contact lenses in unilateral and bilateral aphakia will be available at the booth.

Ophthalmos, Inc., Union City, N. J. Booth 2

This year Ophthalmos, Inc. is proud to display at their exhibit the Steridroppa, the new single dose disposable dropper unit containing sterile Ophthalmos solutions for surgical and emergency use. The Steridroppa is a major advance in the maintenance of sterility in operating procedure and postoperative therapy.

In addition there will be featured Ophthalmos medications for prescription and office use representing the latest formulations of Robert R. Feinstein Research Associates, the original developers of commercially bottled sterile and buffered eye medications in the United States.

Visitors will be in a position to request information of or discuss research or clinical projects with Mr. Robert R. Feinstein at the booth.

Optical Products Corp., Long Island City, N. Y. Booth 40

The Opticase Company, Newark, N. J. Booth 7

We will exhibit a most complete line of spectacle cases including leather, simulated leather, steel, aluminum, felt, made in shapes and sizes such as standard open-ends, foldovers, both reinforced and plain, purse-type cases and a number of other novelty items. We consider our line to be the most complete of any in the business, and in general we can supply practically any type of case that might be desired for the care and protection of ophthalmic eyewear.

Paravox, Inc., Cleveland, Ohio Booth 21

The Paravox exhibit features the all-transistor hearing aid, and Photoscription, a method of fitting the hearing for the individual patient. A photo of the soundwaves from the instrument is supplied each patient to show how the hearing loss is compensated. Great interest in the all-transistor hearing aid is centered in the exclusive chassis design and the battery economy of the one battery operation. Ask for booklet and other information.

Pfizer Laboratories, Brooklyn, N. Y. Booth 64

You are cordially invited to visit the Pfizer booth. Terramycin Intramuscular holds the spotlight this year with a star-studded cast which includes Cortril (brand of hydrocortisone) in several convenient dosage forms, and the complete line of Pfizer-Syntex steroid hormones.

Another newcomer to the Pfizer display is Bonamine, the first compound effective against motionsickness in a single daily dose.

George P. Pilling & Son Co., Philadelphia, Pa. Booths 99 & 100

Pilling-Philadelphia will show a complete line of instruments for the ophthalmologist as well as the otolaryngologist. The display will include intruments made by the leading instrument manufacturers of the world in addition to the Pilling "Specialties."

The Conover-Spaeth Magnetic Campimeter will be of special interest to the ophthalmologist. Among the numerous new items in otolaryngology are the Broyles Suction-Forceps, the Water Clamp-on Head Mirror Magnifier and several new-construction styles of laryngeal and bronchoscopic forceps.

Radium Chemical Company, Inc., New York, N. Y. Booth 39

Radium Chemical Company, Inc., will display the Monel metal radium nasopharyngeal applicator, used for the treatment of hyperplastic lymphoid tissue at the orifice of the eustachian tube and the fossa of Rosenmueller. A complete line of instruments for the application of radon will also be shown.

R. J. Reynolds Tobacco Co., Winston-Salem, N. C. Booth 32

Welcome to the R. J. Reynolds Tobacco Company Exhibit! You are cordially invited to receive a cigarette case (monogrammed with your initials) containing your choice of CAMEL, CAVALIER King Size; or WINSTON, the distinctive new king size, cork tip, filter cigarette.

Ritter Company, Inc., Rochester, N. Y. Booths 129 to 131

Schering Corporation, Bloomfield, N. J. Booth 121

Members of the American Academy of Ophthalmology and Otolaryngology and

their guests are cordially invited to visit the Schering exhibit where new therapeutic developments will be featured.

Schering representatives will be present to welcome you and to discuss with you these products of our manufacture.

Schieffelin & Co., New York, N. Y. Booth 22

Schieffelin & Co. will exhibit its new cycloplegic and mydriatic compound, Cyclogyl-Hydrochloride. Samples of this product will be available and discussions are invited regarding the new forms of Cyclogyl which will soon be available.

Sharp & Dohme (Division of Merck & Co., Inc.), Philadelphia, Pa. Booths 73 & 74

The many indications for Hydrocortone or Cortone highlight the therapeutic importance of these hormones. Research data relative to more effective therapy when penicillin is used in conjunction with Benemid probenecid complete the exhibit. Expertly trained personnel solicit discussion on these observations.

Shuron Optical Company, Inc., Geneva, N. Y. Booth 124

Shuron will feature the Professional Visual Program, of which the Two-Suiter for men and the Two-Some for women are integral parts. Included will be frames of the latest design and of the highest quality.

Smith, Kline & French Laboratories, Philadelphia, Pa. Booth 103

At this meeting, Smith, Kline & French Laboratories is featuring the newest addition to their Inhalant line—Vasocort. An entirely new concept in nasal medication, Vasocort combines hydrocortisone —a superior anti-inflammatory agent— with the vasoconstrictors phenylephrine hydrochloride and Paredrine Hydrobromide, which together provide decongestant action which is both prompt and long-lasting. Vasocort has been tested clinically in hundreds of patients and has been outstandingly effective in the treatment of allergic nasal conditions and nasal polyps.

We hope you will stop at our booth. Our representatives will be glad to discuss Vasocort and the other SKF Specialties with you.

Soft-Lite Bay State Optical Co., Inc., Westbury, N. Y. Booth 79

Sonotone Corporation, Elmsford, N. Y. Booth 81

You are cordially invited to inspect the complete line of Sonotone quality hearing aids, including the latest tiny, economical, all-transistor Model 1111. Our portable screening audiometer for medical, industrial and school use is also a feature of our exhibit.

E. R. Squibb & Sons (Division of Mathieson Chemical Corp.), New York, N. Y. Booth 67

New Squibb Products, and new brochures of useful interest to you on products already introduced, will be featured at Booth 67.

As in former years, your Squibb Representative again cordially invites you to visit the Squibb Booth.

Storz Instrument Co., St. Louis, Mo. Booths 110 to 112

Storz Instrument Company will exhibit in Booths 110 to 112 a complete selection of eye, ear, nose, throat and rhinoplasty instruments and equipment. Quite a few new items will be displayed.

Sturgis-Grant Productions, Inc., New York, N. Y. Booth 128

Specialized production of scientific teaching films in the fields of ophthalmology and otolaryngology is being demonstrated by the producers of the Academy film, The Embryology of the Eye and of its companion film, The Embryology of the Ear. The technics employed in producing both "live-action" and "animation" films are graphically illustrated by exhibit material which also indicates the wide variety of projects to which these technics may be applied. Representatives at the exhibit invite discussion of film ideas and production problems.

Surgical Mechanical Research, Los Angeles, Calif. Booth 108

The Thermosector Co., Oak Park, Ill. Booth 31

The Thermosector, an electrosurgical unit expressly designed for eye, ear, nose and throat technics in office and hospital, will be exhibited and demonstrated. You are invited to investigate the superior features of this device, which is preferred by leading hospitals, clinics and professional men.

Charles C Thomas, Publisher, Springfield, Ill. Booth 86

Gordon's **The Use of ACTH and Cortisone in Ophthalmology** is the most recent addition to our long list of books in these fields which includes: American Committee on Optics and Visual Physiology— **Introduction to Physiological Optics**; Bruetsch—**Syphilitic Optic Atrophy**; Callahan—**Surgery of the Eye: Injuries**; Harris—**Some Relations Between Vision and Audition**; Harrison—**Ocular Therapeutics**; Ingalls—**Tumors of the Orbit and Allied Pseudo Tumors**; Keeney—**Chronology of Ophthalmic Development**; Lancaster—**A Manual of Orthoptics**: Lancaster—**Refraction Correlated with Optics and Physiological Optics: Motility Limited to Heterophoria**; Michaelson—**Retinal Circulation in Man and Animals**; Watkyn-Thomas—**Diseases of the Throat, Nose and Ear**; Bast and Anson—**The Temporal Bone and the Ear**; Canfield— **Audiology, The Science of Hearing**; Galloway—**Treatment of Respiratory Emergencies Including Bulbar Poliomyelitis**; Holmes, Goodell and Wolff—**The Nose**; Myklebust—**Your Deaf Child**; Williams —**Meniere's Disease.**

Titmus Optical Company, Inc., Petersburg, Va. Booths 105 & 106

A new, colorful exhibit will show the complete line of Titmus Corrected Curve Single-Vision Lenses and Multifocal lens types in addition to a complete display of Titmus Starr Frames and the Company's new zyl and gold filled "Intrigue" Frame.

Featured also will be the latest Titmus developments in lenses, including the 25 mm. Straight Top Bifocal and the 7 x 25 mm. Trifocal, a design that has received immediate professional acceptance because of its almost universal usefulness in difficult-to-fit presbyopic cases.

Another highlight will be "Intrigue," a new Titmus combination zyl and metal frame which features replaceable colored zyl top rims. Intrigue is made with both zyl and gold filled temples. A complete assortment of jeweled Trims for Intrigue will also be shown.

Featured also will be a display of the complete Titmus Starr Frame line including all 14 colors and patterns and a new assortment of matching and harmonizing zyl and gold filled temples and trims to add glitter and glamor to an already glamorous line.

Travenol Laboratories, Inc. (Subsidiary of Baxter Laboratories, Inc.), Morton Grove, Ill. Booth 102

Travenol Laboratories, Inc., will welcome you at the Piromen exhibit. Extensive laboratory and clinical studies have demonstrated the efficacy, reliability, and safety of Piromen, a new therapeutic agent.

Piromen is a sterile pseudomonas polysaccharide in a colloidal dispersion for parenteral use. Piromen is a stimulant for the endocrine and reticuloendothelial systems. It has proved its value in the treatment of certain skin disorders, eye disorders, allergies, and angioedema and urticaria associated with penicillin reactions.

Tura, Inc., New York, N. Y. Booth 126

Tura is bringing out a complete brand new frame, made of a new miracle aluminum metal alloy called Turium, extremely light in weight, and with a new lustrous beauty. The new Tura frame can actually be completely adjusted with the fingers alone.

Now the new Tura, made of Turium, is so strong, so easy to adjust that it can actually be angled with the fingers alone. Because of its reinforced bridge and hinges it will hold its adjustment. The

newly designed Tura temple can be adjusted to fit your full range of length requirements. New precision grooving is so accurate that a pair of lenses ground for one Tura frame will fit every Tura frame of the same size.

The Univis Lens Company, Dayton, Ohio Booths 53 & 54

Univis' exhibit should prove of great interest to those attending the Academy Convention at New York. The company will have as its main theme of exhibit, extensive information and demonstration of new findings from Univis research and development.

Ophthalmologists will have the opportunity to see for themselves, new technological developments, new products, and facts and information about additional new products to come.

Demonstrations of the new technological developments will be made and descriptive literature covering these developments and progress will be available to visitors.

The Univis Lens Company cordially invites all members of the Academy and visitors at the Convention to spend some segment of their time there viewing the new Univis developments.

United States Recording Company, Washington, D. C. Booth 1

In our exhibit booth we will demonstrate our Puretone Audiometer, Recorded Speech Audiometer and our automatic Group Screener. In addition we will have on display a Console Turret which is a portion of our large hearing evaluator.

Dr. Max M. von Stirne, Philadelphia, Pa. Booth 17

Walden Industries, Inc., New York, N. Y. Booth 113

Simple, automatic, and economical equipment for clinical close-up photography is shown. Quick-Clix Projection Bulb and Strobe Outfits feature fully automatic aperture and shutter control mechanisms for finest color or black and white pictures. The low-priced Walco Lighting Unit utilizes fixed focus applicators to make photography extremely easy for busy practitioners.

Walton Laboratories, Inc., Irvington, N. J. Booths 15 & 16

The use of Walton Cold Steam humidifiers in the treatment of upper respiratory diseases, as well as the general use of these humidifiers in winter-time living, will be explained at the Walton Laboratories booths.

A complete display of humidification equipment for hospitals, homes and offices will be in operation and competent technical personnel will be on hand to discuss all phases of humidification in the medical field.

Ward Optical Manufacturing Corp., North Arlington, N. J. Booth 10

Ward Optical Manufacturing Corporation will present their current styles in many new fall colors.

Welch Allyn, Inc., Skaneateles Falls, N. Y. Booth 47

Welch Allyn's new binocular, full beam headlight provides both the physician and the specialist with superior visibility for diagnosis and treatment. Let us demonstrate this revolutionary type of cold light with over 500 foot-candles of illumination. A complete line of electrically illuminated, diagnostic instruments for the eye, ear, nose and throat will also be available for inspection.

The White-Haines Optical Co., Columbus, Ohio Booth 80

It is the desire of the White-Haines Optical Company to bring to the members of the American Academy of Ophthalmology and Otolaryngology, the latest equipment available and any practice-building ideas or other matters that we feel would be appreciated by those in attendance. We also look forward to the pleasant renewal of personal contacts between our many friends and customers with the management of our organization.

Over the many years that we have had the pleasure of being exhibitors at the Academy Meeting, we have also profited by careful inspection of displays of other folks who are in attendance at the meeting. This has given us many new ideas, inspirations and directions toward giving a better service to our many friends and customers.

The Williams & Wilkins Co., Baltimore, Md. Booth 72

Visit our booth and see the amazing new three-dimensional slides of the head and neck. They are all in the new section 2 of **A Stereoscopic Atlas of Human Anatomy**, by Bassett—350 stereoscopic views in beautiful and true colors. Six volumes of descriptive text and keyed diagrams accompany the 50 reels. Slides are made to fit in the Sawyer View-Master®, and can be projected, too. Don't overlook **May's Manual of Diseases of the Eye**, now in its 21st edition, **Ophthalmologic Diagnosis**, by Haessler, and our other books of interest to ophthalmologists and otolaryngologists.

Winthrop-Stearns, Inc., New York, N. Y. Booth 104

The members of the American Academy of Ophthalmology and Otolaryngology are cordially invited to visit the Winthrop-Stearns Inc. booth. Featured products are OPH, decongestant, astringent, antiseptic eye drops; NTZ, a combination of the time-tested, dependable decongestant Neo-Synephrine, with the potent, well-tolerated antihistaminics Thenfadil and Zephiran; Neo-Synephrine, special ophthalmic preparations for mydriasis of short duration; Pontocaine, reliable topical anesthetic with prolonged action and good penetration.

Carl Zeiss, Inc., New York, N. Y. Booths 38, 45 & 46

CARL ZEISS, Oberkochen, U. S. Zone, West Germany, will exhibit a new retinal Camera, Large Ophthalmoscope, Perimeter for quantitative examinations, and an Iridoscope with Photo Attachment, Electronic Flash and Camera for photographing the anterior segment of the eye. The Photo Attachment will also be shown on a Slit Lamp Apparatus as well as Operation Microscope. Of interest will be the Slit Lamp Apparatus on Compound Stage which can easily be attached to standard refracting units. Further will be shown an Ophthalmometer for fitting contact glasses. A new Double Instrument Table permits the setting up of two ophthalmic instruments side by side.

Zenith Radio Corporation, Chicago, Ill. Booth 9

At its booth, the Hearing Aid Division of Zenith Radio Corporation will exhibit its complete line of high-quality, low-cost hearing aids. Zenith representatives will be on hand to demonstrate the instruments and answer questions, and they will be pleased to explain how any physician may test a Zenith Hearing Aid for thirty days at no cost or obligation.

Zylite Products Company, Inc., New York, N. Y. Booth 114

ZyloWare Corporation, Long Island City, N. Y. Booth 62

For the first time, a frame has been developed that is adaptable to all the uses described below. It is a conventional frame with male fasteners to which a twin front snaps on. The entire unit consisting of frame and twin front is called Twin-Spec and is available in Mr. Twin-Spec for men and Miss Twin-Spec for women.

Here are the various applications: reading add, minus add, prisms, colored filters (various uses for visual training), aniseikonia, bifocal fitting sets, bifocal snap-ons (plano bifocal), plano green, plano tints (hunting glass, night driving), sunglass reading add, cataract cases, industrial work (safety lenses), 3-D movies, any temporary use.

SECTION ON INSTRUCTION

FIFTY-NINTH ANNUAL MEETING

American Academy of Ophthalmology and Otolaryngology

September 19-24, 1954
WALDORF-ASTORIA HOTEL
New York, N. Y.

DEAN M. LIERLE, M.D.
Secretary for Instruction — Otolaryngology and Maxillofacial Surgery

A. D. RUEDEMANN, M.D.
Secretary for Instruction — Ophthalmology

The following condensed schedules of instruction courses are reprinted for the convenience of Fellows who have not yet placed orders for tickets.

Courses already sold out are so designated on the charts. Please do not request tickets for these courses.

For complete listing of course titles, instructors, and descriptive paragraphs about each subject, please refer to the March-April issue of the TRANSACTIONS.

General Instructions

Only members who have paid their 1954 *dues may order instruction tickets in advance of the meeting.* Members should order tickets only for their own use. Candidates for fellowship in the Academy are not privileged to reserve tickets in advance. After the session opens, no distinction between members, candidates and guests will be made in selling tickets.

Each period (1 hour) of instruction costs $2.00. *Orders unaccompanied by properly executed checks will not be filled.* Checks should be made payable to W. L. Benedict, M.D.

In case of inability to attend the meeting after order has been filled, a refund will be granted if requested prior to September 17.

If courses requested are not available and it is impossible to substitute, a refund will be granted. Refunds will not be sent by mail. A blue refund card will be placed in the Advance Registration Envelope which is received at the time of registration. This should be presented at the Instruction Desk, Room 805 of the headquarters hotel, for payment.

All orders for tickets will be filled according to postmark on envelope containing check. Telegrams will not be honored. Previous to August 31, send orders to 100 First Avenue Building, Rochester, Minnesota; after August 31, mail orders direct to W. L. Benedict, M.D., c/o Waldorf-Astoria Hotel, New York, N. Y. Advance orders will not be filled if received after September 16.

Ordering Instruction Tickets

An *individual* course is complete in one (1) period. Most individual courses are repeated on two or three different days allowing the subscriber to choose the day on which he wishes to attend.

A *continuous* course lasts two (2) or more periods as indicated. It is not possible to purchase a ticket to only *part* of a continuous course.

At the end of this section is printed a colored sheet to be used when ordering tickets in advance. Specify preferences on this sheet and mail to the executive office. Careful attention to instructions will ensure the correct filling of your requests. *Since number of tickets for each course is limited, be sure to list second and third preferences for each period in case first preference is already sold out. In every case, effort will be made to furnish first choices.*

If you are requesting registration in the continuous courses, please specify preferences for individual courses as substitutes in order to avoid disappointment should the continuous courses which you select be sold out when your order is received.

Acknowledgment of Advance Order

As soon as an advance order is filled, a postcard, listing the courses that have been reserved for him, will be mailed to the subscriber. Please do not ask to change courses after your order has been filled. The postcard is merely an assurance that your order has been filled; it is not necessary for registration at the Academy meeting.

Claiming Instruction Tickets

No tickets will be sent through the mails. Members who have ordered instruction course tickets will register at the *Advance Order Section* of the Registration Desk during the week of the Convention to secure registration badge, tickets, and all convention material.

Tickets will be on sale during the meeting in Room 805, Eighth Floor, of the headquarters hotel.

KEY TO DESIGNATION OF PERIODS

The periods will be designated with the following key: Select tickets for — Otolaryngology, forenoons, periods 1-2-3 — Ophthalmology, afternoons, periods 4-5-6

Day	(M)onday	(T)uesday	(W)ednesday	(Th)ursday
Period a.m.		1 2 3	1 2 3	1 2 3
Period p.m.	4 5 6	4 5 6	4 5 6	4 5 6

M-4	2:00 p.m. to 3:00 p.m.	W-4	2:00 p.m. to 3:00 p.m.
M-5	3:15 p.m. to 4:15 p.m.	W-5	3:15 p.m. to 4:15 p.m.
M-6	4:30 p.m. to 5:30 p.m.	W-6	4:30 p.m. to 5:30 p.m.
T-1	9:00 a.m. to 10:00 a.m.	Th-1	9:00 a.m. to 10:00 a.m.
T-2	10:15 a.m. to 11:15 a.m.	Th-2	10:15 a.m. to 11:15 a.m.
T-3	11:30 a.m. to 12:30 p.m.	Th-3	11:30 a.m. to 12:30 p.m.
T-4	2:00 p.m. to 3:00 p.m.	Th-4	2:00 p.m. to 3:00 p.m.
T-5	3:15 p.m. to 4:15 p.m.	Th-5	3:15 p.m. to 4:15 p.m.
T-6	4:30 p.m. to 5:30 p.m.	Th-6	4:30 p.m. to 5:30 p.m.
W-1	9:00 a.m. to 10:00 a.m.		
W-2	10:15 a.m. to 11:15 a.m.		
W-3	11:30 a.m. to 12:30 p.m.		

(Familiarity with this key will be helpful and will avoid confusion)

CHANGES IN INSTRUCTION COURSE PROGRAM AS LISTED IN THE MARCH-APRIL 1954 TRANSACTIONS

Course 273 on "Unilateral Visual Failure Due to Intracranial Lesions," by Dr. Frank Payne, will not meet as scheduled in the March-April Transactions. It will be given twice, on M-4 and on T-4, in Room 825.

Course 240 on "Anesthetic Agents and Technics," by Dr. Harold L. Harris has been cancelled on W-5. The Tuesday lecture will be given as scheduled.

SECTION ON INSTRUCTION

ADVANCE ORDER SHEET

All courses cost $2.00 for each period (one hour). Follow instructions explicitly and check for errors in listing before mailing.

Previous to AUGUST 31

Send order to . . .

WILLIAM L. BENEDICT, M.D., *Executive Secretary-Treasurer*
American Academy of Ophthalmology and Otolaryngology
100 First Avenue Building, Rochester, Minnesota

After AUGUST 31, mail to . . .

WILLIAM L. BENEDICT, M.D., *Executive Secretary-Treasurer*
American Academy of Ophthalmology and Otolaryngology
c/o Waldorf-Astoria Hotel, New York, N. Y.

Academy Candidates and Guests May Purchase Tickets at Instruction Desk, Room 805, Only

(Over)

ADVANCE ORDER SHEET

ORDERS FILLED ONLY IF CURRENT DUES ARE PAID

NO REFUNDS WILL BE MADE AFTER SEPTEMBER 17

(Type or Print) Last Name First Name Middle Initial

Office Address

City Zone State

Days to be Present

- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday

Total Amount Enclosed $_____

SELECTION OF COURSES ON REVERSE SIDE OF THIS BLANK

RECAPITULATION OF GENERAL INSTRUCTIONS

1. Monday, Tuesday, Wednesday, and Thursday are represented by the letters M, T, W, Th. The first period in the morning is represented by figure 1, second period by figure 2 and third period by figure 3. The first period in the afternoon is represented by figure 4, second period by figure 5, and third period by figure 6. All courses in otolaryngology and maxillofacial surgery are presented in the mornings. All courses in ophthalmology are presented in the afternoons.
2. Reservation of instruction tickets in advance of the meeting will be made ONLY for MEMBERS whose 1954 dues have been paid. Academy candidates and guests may make selection of courses ONLY at the Instruction Desk in Room 805, Waldorf-Astoria Hotel, in New York.
3. Make check payable to W. L. Benedict, M.D.
4. Mail order promptly to ensure reservation of first choices. If necessary, an attempt will be made to rearrange schedule to include "first choices."

(Over)

SELECTION OF COURSES

PERIOD		FIRST CHOICE		SECOND CHOICE		THIRD CHOICE	
		Course No.	Lecturer	Course No.	Lecturer	Course No.	Lecturer
MON.	4						
P.M.	5						
	6						
TUES.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						
WED.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						
THURS.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						

The Following are Condensed Schedules of Courses Previously Described

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
1	Alfano	Internal Carotid Artery	2 PERIODS W-4, Th-4
2	Allen et al	Bacteriology & Infectious Diseases	8 PERIODS M-4, M-5, T-4, T-5, W-4, W-5, Th-4, Th-5
3	Ascher	Aqueous Veins in Glaucoma	2 PERIODS M-4, M-5
4	Bedell	Medical Ophthalmoscopy	4 PERIODS M-4, T-4, W-4, Th-4
5	Berliner	.....SOLD OUT.....	
6	Birge et al	New Theories of Vascular Disease	2 PERIODS T-4, T-5
7	Boeder	Practical Optics	2 PERIODS M-4, M-5
8	Boeder	Aniseikonia & Space Eikonometry	2 PERIODS T-4, T-5
9	Brown et al	Eye Muscles	8 PERIODS M-4, M-5, T-4, T-5, W-4, W-5, Th-4, Th-5
11	Cole, Grant, Hartman, Reeh	Plastic Surgery: Advanced	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
12	Chace & Lowrey	Ocular Malingering	2 PERIODS M-4, M-5
13	Clark	Surgery of Ocular Muscles	2 PERIODS M-4, M-5
14	Cooper	Accommodative Esotropia	2 PERIODS T-4, T-5
15 or 16	Copeland	Streak Retinoscopy	4 PERIODS M-4, M-5, T-4, T-5 or W-4, W-5, Th-4, Th-5
17	Costenbader et al	Comitant Strabismus	12 PERIODS M-4, M-5, M-6, T-4 T-5, T-6, W-4, W-5 W-6, Th-4, Th-5, Th-6
18 or 19	DeVoe	Clinical Application of Gonioscopy	2 PERIODS W-4, W-5 or Th-4, Th-5
20	Dunnington & Clark	.....SOLD OUT.....	
21	Fink	Management of Oblique Muscle Problems	3 PERIODS M-5, T-5, W-5
22	Friedenwald & Becker	Studies in Aqueous Flow	2 PERIODS M-4, M-5
23	Gordon	Practical Perimetry	4 PERIODS M-6, T-6, W-6, Th-6
24	Guibor	.....SOLD OUT.....	3 PERIODS M-4, T-4, W-4
25	Henderson	Neuro-ophthalmology	3 PERIODS M-5, T-5, W-5
26	Hollenhorst	Arterial Diseases	2 PERIODS W-4, W-5
27	Hollinshead	Anatomy of the Orbit	2 PERIODS M-5, M-6
28	Hughes et al	.....SOLD OUT.....	

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
29	Jobe & Lueck	Laboratory Demonstration: Ophthalmic Optics	2 PERIODS W-4, W-5
30	Johnson & Ballintine	Clinical Aqueous Tonography	2 PERIODS M-4, M-5
31 or 32	Katz & Jakus	Anatomy & Histology: Recent Advances	2 PERIODS W-4, W-5 or Th-4, Th-5
33	Knighton et al	Highlights in Glaucoma	8 PERIODS M-5, M-6, T-5, T-6, W-5, W-6, Th-5, Th-6
34	Lloyd	Macular Lesions	3 PERIODS M-6, T-6, Th-5
35	Lyle	Neurologic Lesions	2 PERIODS M-4, M-5
36	McLean et al	Cataract Surgery	12 PERIODS M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5, W-6, Th-4, Th-5, Th-6
37	Meyer et al	Glaucoma	8 PERIODS M-4, M-5, T-4, T-5, W-4, W-5, Th-4, Th-5
38	Ogle	Essential Aspects of Binocular Vision	2 PERIODS Th-4, Th-5
39	Paton	Corneal Surgery	3 PERIODS M-6, T-6, W-6
40	Pino & Edwards	Problems of Bifocal & Aphakic Lenses	2 PERIODS T-4, T-5
41	Rolett	Practical Application of Gonioscopy	2 PERIODS M-5, M-6
42	Romaine et al	Ocular Motility	12 PERIODS M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5, W-6, Th-4, Th-5, Th-6
43	Sanders et al	Vascular Disease	3 PERIODS M-6, T-6, W-6
44	Schimek & Bousquet	Gonioscopy & Aqueous Outflow Determinations	2 PERIODS M-4, M-5
45	Sloane	School Vision Testing	2 PERIODS M-4, M-5
46	Sloane	Telescopic Lenses	2 PERIODS T-4, T-5
47	Pollen & Gettes	Prescription of Prisms Drugs in Refraction	2 PERIODS W-4, W-5
48	Stow & Moss	Diagnostic & Therapeutic Office Procedures	2 PERIODS Th-4, Th-5
49	Tait	Accommodation & Convergence Abnormalities	2 PERIODS W-4, W-5
50	Theobald et al	Histopathology	12 PERIODS M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5, W-6, Th-4, Th-5, Th-6
51	Thorpe et al	Slit Lamp Biomicroscopy	12 PERIODS M-4, M-5, M-6, T-4, T-5, T-6, W-4, W-5, W-6, Th-4, Th-5, Th-6
52	Thorpe	Surgery of Intraocular Foreign Bodies	2 PERIODS T-4, T-5
53	Wheeler & Knapp	Concomitant Strabismus	6 PERIODS M-5, M-6, T-5, T-6, W-5, W-6
54	Wiener	Practical Points in Surgery	3 PERIODS M-6, T-6, W-6

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Monday

Key M-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
201	Aldrich	Psychosomatic Medicine
203	Alvis	End Results of Cataract Wound Closure
204	Atkinson	Anesthesia
206	Barkan	Congenital Glaucoma
209	Bettman	Value of Goniotomies
212	Calhoun	Dystrophies & Degenerations of the Cornea
214	Chamberlain	Vertical Motor Anomalies
216	Chandler	Cataract Surgery
248	Klien	Clinical Pathology of Retinal Lesions
251	Leahey	Corneal Transplant
252	Leinfelder	Papilledema & Optic Neuritis
253	Lemoine	Vitreous Opacities
273	Payne	Unilateral Visual Failure Due to Intracranial Lesions
A	Home Study	Embryology, Anatomy & Neuro-anatomy

Key M-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
210	Boyes	Eye Surgery Problems
229	Gemeroy	External Diseases of the Eye
233	Goar	Management of Monocular Cataracts
235	Hague	Beta Irradiation
244	Kennedy	Eye Changes in Diabetes
258	Linksz	Telescopic Lenses & Magnifying Systems
280	Rychener	Lacrimal Apparatus
283	Simpson	Convergence Insufficiency & Divergence Excess
299	Whalman	Minor Surgical Procedures of the Eyes
302	Egan	Cross Cylinder Application & Therapy
B	Home Study	Physiology

Key M-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
202	Alvaro	Uveitis: Etiology & Treatment
213	Cassady	Dacryocystitis of Infancy
217	Coston	Interesting Ophthalmoscopic Slides
218	Cusick	Ptosis
221	DeVoe	Corneal Dystrophies
224	Falls	Practical Application of Heredity
234	Guy	Foreign Bodies
239	Harrington	Dynamics of Phacoerisis
241	Hughes	Use of Strontium Applicator
246	Keyes	Intraocular Vascular Disease
247	Kirby	Problems in Presbyopia
257	Lewis	External Diseases
260	Macnie	Head Trauma with Ocular Significance
263	Mann, W.	Optical Correction of Aphakia
277	Post	Infection in Ophthalmology: Preventive Measures
281	Scheie	Emergency Eye Surgery
289	Swan	Ophthalmic Therapeutics
295	Veasey	Refraction Difficulties
298	Weston	Clinical Measurement of Astigmatism
C	Home Study	Refraction

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Tuesday

Key T-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
201	Aldrich	Psychosomatic Medicine
203	Alvis	End Results of Cataract Wound Closure
204	Atkinson	Anesthesia
205	Baker	Neuralgias of Head
209	Bettman	Value of Goniotomies
212	Calhoun	Dystrophies & Degenerations of the Cornea
214	Chamberlain	Vertical Motor Anomalies
220	Davidson	Surgical Instruments: Preparation & Care
226	Fralick	Surgical Anatomy of Operations for Glaucoma
236	Haik	Intraocular Foreign Bodies
250	Kronfeld	Glaucoma Surgery: End Results
251	Leahey	Corneal Transplant
252	Leinfelder	Papilledema & Optic Neuritis
253	Lemoine	Vitreous Opacities
273	Payne	Unilateral Visual Failure Due to Intracranial Lesions
278	Randolph	Handling Patients with Advanced Glaucoma
297	Wendland	Chiasmal Lesions
D	Home Study	External Diseases, Bacteriology & Virology

Key T-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
210	Boyes	Eye Surgery Problems
215	Chamlin	.....SOLD OUT.....
222	Dixon	Indirect Ophthalmoscopy
225	Falls	Ocular Geriatrics
229	Gemeroy	External Diseases of the Eye
235	Hague	Beta Irradiation
240	Harris	Anesthetic Agents & Technics
249	Kornzweig	Practical Embryology
257	Lewis	External Diseases
258	Linksz	Telescopic Lenses & Magnifying Systems
275	Pfeiffer	Roentgenographic Diagnosis
299	Whalman	Minor Surgical Procedures of Eyes
302	Egan	Cross Cylinder Application & Therapy
E	Home Study	Perimetry & Neuro-ophthalmology

Key T-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
202	Alvaro	Uveitis: Etiology & Treatment
213	Cassady	Dacryocystitis of Infancy
217	Coston	Interesting Ophthalmoscopic Slides
218	Cusick	Ptosis
231	Gipner	Recent Advances
234	Guy	Foreign Bodies
238	Harley	Lesions of the 3rd, 4th & 6th Cranial Nerves
239	Harrington	Dynamics of Phacoerisis
241	Hughes	Use of Strontium Applicator
242	Jardon	Fitting of Ocular Prostheses
243	Joy	Angiography in Ophthalmology
246	Keyes	Intraocular Vascular Disease
247	Kirby	Problems in Presbyopia
254	Leopold	Advances in Therapy
260	Macnie	Head Trauma with Ocular Significance
263	Mann, W.	Optical Correction of Aphakia
277	Post	Infection in Ophthalmology: Preventive Measures
282	Scheie	Surgery in Congenital Glaucoma
286	Spaeth	Plastic Surgery: Practical Aspects
295	Veasey	Refraction Difficulties
298	Weston	Clinical Measurement of Astigmatism
F	Home Study	Extraocular Muscles

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Wednesday

Key W-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
205	Baker	Neuralgias of Head
207	Berens	Cyclodiathermy, Iridencleisis, Cyclodialysis
219	Cutler	Procedures Used in Enucleation
223	Dunlap	Divergence Anomalies
228	Fry	Lesions at Posterior Pole of Eye
230	Gifford	Surgical Procedures on Lacrimal Apparatus
236	Haik	Intraocular Foreign Bodies
245	Kestenbaum	.....SOLD OUT.....
259	Lowrey	Tropical Opthalmology
262	Mann, M.	Hypertensive Vascular Changes in Fundus
268	Morrison	Office Management of Glaucoma
271	Olson	Iritis, Iridocyclitis & Keratitis
279	Rundles	Streak Retinoscopy
285	Spaeth	Concomitant Strabismus
287	Steffensen	ACTH, Cortisone & Hydrocortisone
G	Home Study	Ophthalmoscopy & Medical Ophthalmology

Key W-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
232	Givner	Systemic Disease
237	Hanser	Studies in Ocular Allergy
240	Harris	..... CANCELLED .....
244	Kennedy	Eye Changes in Diabetes
255	Lepard	Eye Diseases Common to Children
264	McCaslin	Ocular Anesthesia
266	McGuire	Heterophoria & Heterotropia
269	Mullen	Ophthalmic Emergencies
275	Pfeiffer	Roentgenographic Diagnosis
282	Scheie	Surgery in Congenital Glaucoma
292	Theodore	Ocular Therapeutics
294	Townes	Complications of Cataract Surgery
300	Wise	Fundus Changes of the Optic Nerve Head
H	Home Study	Pathology

Key W-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
208	Berke	Surgery of Oblique Muscles
221	DeVoe	Corneal Dystrophies
227	Fread	Ideal Refraction Equipment
231	Gipner	Recent Advances
261	Mangold	Proper Fitting of Glasses
265	McGraw	Contact Lenses
267	Merriam	Radio Therapy
270	Murphy	Preparation of Ophthalmic Medications
272	Paulson	Lighting for Comfortable and Accurate Seeing
274	Perera	Retinal Detachment
276	Posner	Glaucomatocyclitic Crises
284	Smith	Practical Points in Office Procedure
288	Stimson	Lenses for the Aphakic
290	Tabor	Vertical Muscles
291	Tassman	Retinopathy in Diabetics
293	Town	Adjuncts in Wound Closure
296	Veirs	.....SOLD OUT.....
301	Wood	Macular Lesions
I	Home Study	Pharmacology & Therapeutics

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Thursday

Key Th-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
219	Cutler	Procedures Used in Enucleation
223	Dunlap	Divergence Anomalies
230	Gifford	Surgical Procedures on Lacrimal Apparatus
245	Kestenbaum	.....SOLD OUT.....
248	Klien	Clinical Pathology of Retinal Lesions
256	Levy	Motion Picture Photography: Methods & Highlights
262	Mann, M.	Hypertensive Vascular Changes in Fundus
264	McCaslin	Ocular Anesthesia
268	Morrison	Office Management of Glaucoma
271	Olson	Iritis, Iridocyclitis & Keratitis
279	Rundles	Streak Retinoscopy
285	Spaeth	Concomitant Strabismus
287	Steffensen	ACTH, Cortisone & Hydrocortisone
297	Wendland	Chiasmal Lesions
J	Home Study	Optics & Principles of Biomicroscopy

Key Th-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
222	Dixon	.....SOLD OUT.....
237	Hanser	Studies in Ocular Allergy
266	McGuire	Heterophoria & Heterotropia
292	Theodore	Ocular Therapeutics
294	Townes	.....SOLD OUT.....
300	Wise	Fundus Changes of the Optic Nerve Head
J	Home Study	Continuation of Th-4

Key Th-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
227	Fread	Ideal Refraction Equipment
261	Mangold	Proper Fitting of Glasses
265	McGraw	Contact Lenses
267	Merriam	Radio Therapy
270	Murphy	Preparation of Ophthalmic Medications
274	Perera	Retinal Detachment
284	Smith	Practical Points in Office Procedure
288	Stimson	Lenses for the Aphakic
290	Tabor	Vertical Muscles
291	Tassman	Retinopathy in Diabetics
293	Town	Adjuncts in Wound Closure
296	Veirs	.....SOLD OUT.....
301	Wood	Macular Lesions

CONTINUOUS COURSES AND PANEL DISCUSSIONS
OTOLARYNGOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
101	Altmann & Waltner	Histopathology of Ear—Part I	2 PERIODS T-1, T-2
102	Altmann & Waltner	Histopathology of Ear—Part II	2 PERIODS W-1, W-2
103	Boies et al	Rhinologic Problems	2 PERIODS W-2, W-3
104 or 105	Bryan & Bryan	Cytologic Pathology in the Differential Diagnosis of ENT Diseases	2 PERIODS T-2, T-3 or W-2, W-3
106 or 107	Cohen	Rhinoplasty Complications	2 PERIODS T-2, T-3 or Th-2, Th-3
108 or 109	Conley, et al	Cancer of Head & Neck	2 PERIODS T-1, T-2 or Th-1, Th-2
110	Converse	Nasal Plastic Surgery—Basic	2 PERIODS T-1, T-2
111	Converse	Nasal Plastic Surgery—Advanced	2 PERIODS W-1, W-2
112 or 113	Cullen, et al	Anesthesia for Otolaryngologic Surgery	2 PERIODS T-2, T-3 or W-2, W-3
114 or 115	Day & Walsh	What Can Be Done for Deafness	2 PERIODS T-2, T-3 or W-2, W-3
116	Furstenberg, et al	Tumors & Cysts of the Head & Neck	2 PERIODS W-1, W-2
117 or 118	Hansel	Allergy	2 PERIODS T-2, T-3 or Th-2, Th-3
119 or 120	Hardy & Pauls	Special Audiometry in Differential Diagnosis	2 PERIODS W-1, W-2 or Th-1, Th-2
121	Hoople, et al	Fluid Ears	2 PERIODS T-2, T-3
122 or 123	Huffman	Plastic Surgery	2 PERIODS T-1, T-2 or Th-1, Th-2
124	Jackson	Peroral Endoscopy	3 PERIODS T-1, W-1, Th-1
125	Kazanjian, et al	Traumatic Injuries of Face	2 PERIODS Th-2, Th-3
126 or 127	Lindsay	Vertigo	2 PERIODS W-2, W-3 or Th-2, Th-3
128 or 129	Marcus, et al	Hearing Problems in Children	2 PERIODS T-1, T-2 or Th-1, Th-2
130 or 131	McLaurin et al	External Otitis	2 PERIODS W-2, W-3 or Th-2, Th-3
132 or 133	Meltzer, et al	Otological Problems	2 PERIODS T-2, T-3 or W-2, W-3
134 or 135	Moses	Speech & Voice Therapy	2 PERIODS T-1, T-2 or Th-1, Th-2
136 or 137	Mueller, et al	Hearing Aids	2 PERIODS W-2, W-3 or Th-2, Th-3
138 or 139	Priest, et al	Medication for the Otolaryngologist	1 PERIOD T-1 or W-1
140	Raum et al	Pathology—I	3 PERIODS T-1, T-2, T-3
141	Raum et al	Pathology—II	3 PERIODS W-1, W-2, W-3
142	Raum et al	Pathology—III	3 PERIODS Th-1, Th-2, Th-3
143	Scheidrup	Anatomy of the Neck	2 PERIODS T-2, T-3
144 or 145	Sellers	Dizziness, Dysacousis & Disesthesia	2 PERIODS W-1, W-2 or Th-1, Th-2
146 or 147	Seltzer	A Typical Rhinoplasty	2 PERIODS W-2, W-3 or Th-2, Th-3
148 or 149	Semenov	Therapy in Pathology of ENT	2 PERIODS T-1, T-2 or W-1, W-2
150 or 151	Tucker, et al	Esophageal Diseases & Foreign Bodies	2 PERIODS T-2, T-3 or W-1, W-2
152 or 153	Williams et al	Head Pain	2 PERIODS T-1, T-2 or W-1, W-2

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Tuesday

Key T-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
401	Alexander	The Adenoid Operation
402	Becker	Plastic Surgery of Protruding Ears
407	Brodnitz	The Actor & Singer in ENT Practice
410	Carpenter & Goff	Respiratory & Swallowing Problems in the Newborn
413	Coleman	Practical Psychosomatic Aspects
414	Corgill	Laryngopharyngectomy & Bilateral Neck Dissection
417	Crispell	Allergy in Children
421	DeWeese	The Dizzy Patient
424	Furchgott	Hearing Disorders
434	Hickey	Tumors of the Nasal Septum
439	Holinger	Pediatric Laryngology
446	Johnson	Anesthesia in Adult Tonsillectomies
450	Jordan, R.E.	Allergy in Otology
459	Lederer	Diagnostic Approaches & Recent Trends
460	LeJeune	Intralaryngeal Surgery
465	Long	Sulfonamides & Antibiotics in Respiratory Infections
471	Missal	Skin Tests in Allergy
477	Orton	Surgical Considerations of the Neck
483	Reger	Practical Office Audiometry
485	Richards	Suggestions Concerning Office Practice
494	Schenck	Physiology of the Lymph Tissue
495	Schuknecht	Perceptive Deafness: Differential Diagnosis
498	Shambaugh	Practical Office Routine in Otologic Problems
504	Thornell	Intralaryngeal Arytenoidectomy
512	Woodman	Glottic Obstruction
513	Work	Wide Field Laryngectomy

Key T-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
403	Beinfield	.....SOLD OUT.....
405	Boyden	Chronic Frontal Sinus Surgery
406	Brandenburg	Understanding the Problem Patient
409	Canfield	Audiology for the Practicing Otologist
411	Cody	Management of Eustachian Tubal Pathology
428	Goodyear	Maxillary Sinus Disease
448	Jones, L. T.	Tear Sac Surgery
451	Juers	Hearing Tests
454	Kemler	Focal Infections: Upper Respiratory Tract
467	McBean	Severe Nosebleed
475	Neivert	Workshop for Deformed Instruments
478	Pearlman	ENT Complaints in Old Age
482	Rawlins	ACTH, Cortisone & the Antihistaminic Drugs
484	Reger	Detection of Auditory Malingering
490	Salinger & Cohen, B.M.	Septum Correction & Rhinoplasty
507	Tschiassny	Labyrinthine Tests
510	Von Leden	Dissection in Continuity
511	Wilson	Otoplasty for Protruding Ears
514	Wynn	Facial Injuries: Plastic Repair

Key T-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
408	Brown	Chronic Suppurative Otitis Media
415	Costen	Mandibular Joint Syndrome
416	Craft	Nasal Allergy
418	Davies	Development of Face & Ear
420	Derlacki	Role of Allergy in Deafness
427	Goodhill	Management of Tinnitus
431	Harrill	Bronchography
432	Harris	Poliomyelitis: Respiratory Complications
433	Hedgecock	Clinical Audiometry
436	Hilger	Therapeutic Approaches to the Inner Ear
437	Hill	Antro-Alveolar Fistulas
438	Hilsinger	Vascular Headaches
452	Keaster	Speech & Hearing in Children Under Five
455	Kinney	Hearing Impairments in Children
456	Kobrak	Treatment of Middle Ear Deafness
462	Lempert	Temporal Bone Surgery
470	Miller	Laryngeal Emergencies in Infants & Children
472	Moore	Eustachian Tube Problems
474	Nash	Occupational Deafness
476	Ogura	Laryngectomy & Neck Dissection
486	Rinkel	Food Allergy in Oto-laryngologic Practice
487	Roberts	Management of Nasal Fractures
500	Sisson	Carcinoma of Head & Neck: Surgical Principles
501	Skolnik	Cleft Palate
505	Tingwald	Maxillary Sinus Disease
506	Tremble	Practical Therapeutics in Office Practice
509	Van Alyea	Chronic Sinusitis

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Wednesday

Key W-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
401	Alexander	The Adenoid Operation
404	Bellucci	Submucous Resection of Nasal Septum
410	Carpenter & Goff	Respiratory & Swallowing Problems in the Newborn
412	Cohen, S.	Deviated Noses & Their Correction
414	Corgill	Laryngopharyngectomy & Bilateral Neck Dissection
417	Crispell	Allergy in Children
421	DeWeese	The Dizzy Patient
423	Friedman & Marquit	Plastic Surgery of the Nose & Face
424	Furchgott	Hearing Disorders
434	Hickey	Tumors of the Nasal Septum
435	Hilger	Direct Fixation of Facial Fractures
441	Hosler	Cardiac Arrest
442	House	Surgery of Chronically Discharging Ear
445	Ireland	Common Sense Treatment of the Office Patient
446	Johnson	Anesthesia in Adult Tonsillectomies
447	Jones, A. C.	Helpful Hints for Everyday Practice
451	Juers	Hearing Tests
461	Lempert	Diagnosing Type of Hearing Loss
466	Maxwell	Tumors of Face & Neck in Infancy & Childhood
468	McNally	Labyrinthine Tests
471	Missal	Skin Tests in Allergy
473	Morrison	Laryngeal Paralysis
481	Putney	Surgery of Neck Tumors
497	Seltzer	Abrasion of the Face
499	Shuster	Vestibular Apparatus
515	Zizmor	Roentgen Diagnosis

Key W-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
403	Beinfield	Management of Nasal Hemorrhage
406	Brandenburg	Understanding the Problem Patient
411	Cody	Management of Eustachian Tubal Pathology
419	Davison	Use of Antibiotics
443	House	Atresia of the Ear Canal
449	Jordan, L. W.	Nasal Fractures
453	Keim	Management of Parotid Tumors
457	Kos	Inflammatory Perforation of the Ear Drum
467	McBean	Severe Nosebleed
469	McQuiston	Endaural Radical Mastoidectomy
475	Neivert	Workshop for Deformed Instruments
480	Pressman	Partial Laryngectomies
482	Rawlins	ACTH, Cortisone & the Antihistaminic Drugs
488	Robison	Allergic Sinusitis: Treatment
490	Salinger & Cohen, B. M.	Septum Correction & Rhinoplasty
491	Schall	Cancer of the Nose & Sinuses
492	Schattner	Rhinoplasty by Reassembly of Nasal Elements
513	Work	Wide Field Laryngectomy

Key W-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
415	Costen	Mandibular Joint Syndrome
422	Erich	Fractures of Facial Bones
425	Glorig	Hearing Aid Selection
426	Goldman	Vasomotor Rhinitis
429	Hampsey	Sinusitis in Children
430	Harbert	Clinical Audiology
432	Harris	Poliomyelitis: Respiratory Complications
437	Hill	Antro-Alveolar Fistulas
438	Hilsinger	Vascular Headaches
439	Holinger	Pediatric Laryngology
440	Holmes	Scars of the Face
444	Hunnicutt	. . . . SOLD OUT . . . . .
452	Keaster	Speech & Hearing in Children Under Five
455	Kinney	Hearing Impairments in Children
458	Lassman	Prescription of Hearing Aids
462	Lempert	Temporal Bone Surgery
470	Miller	Laryngeal Emergencies in Infants & Children
479	Perlman	Serous Otitis
489	Ryan	Headache
493	Scheldrup	Autonomic Neuro-anatomy of Head & Neck
500	Sisson	Carcinoma of Head & Neck: Surgical Principles
502	Slaughter	Congenital Deformity of the Ear
503	Sullivan	Facial Paralysis & Bell's Palsy
505	Tingwald	Maxillary Sinus Disease
510	Von Leden	Dissection in Continuity
514	Wynn	Facial Injuries: Plastic Repair

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Thursday

Key Th-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
402	Becker	Plastic Surgery of Protruding Ears
404	Bellucci	Submucous Resection of the Nasal Septum
407	Brodnitz	The Actor & Singer in ENT Practice
418	Davies	Development of Face & Ear
422	Erich	Fractures of Facial Bones
423	Friedman & Marquit	Plastic Surgery of the Nose & Face
431	Harrill	Bronchography
440	Holmes	Scars of the Face
441	Hosler	Cardiac Arrest
442	House	Surgery of Chronically Discharging Ear
447	Jones, A. C.	Helpful Hints for Everyday Practice
453	Keim	Management of Parotid Tumors
454	Kemler	Focal Infections: Upper Respiratory Tract
461	Lempert	Diagnosing Type of Hearing Loss
463	Lewy	Direct Laryngoscopy
465	Long	Sulfonamides & Antibiotics in Respiratory Infections
466	Maxwell	Tumors of Face & Neck in Infancy & Childhood
468	McNally	Labyrinthine Tests
472	Moore	Eustachian Tube Problems
477	Orton	Surgical Considerations of the Neck
479	Perlman	Serous Otitis
485	Richards	Suggestions Concerning Office Practice
495	Schuknecht	Perceptive Deafness: Differential Diagnosis
497	Seltzer	Abrasion of the Face
498	Shambaugh	Practical Office Routine in Otologic Problems
504	Thornell	Intralaryngeal Arytenoidectomy
508	Van Alyea	Embryology of ENT
512	Woodman	Glottic Obstruction

Key Th-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
405	Boyden	Chronic Frontal Sinus Surgery
413	Coleman	Practical Psychosomatic Aspects
419	Davison	Use of Antibiotics
428	Goodyear	Maxillary Sinus Disease
430	Harbert	Clinical Audiology
443	House	Atresia of the Ear Canal
448	Jones, L. T.	Tear Sac Surgery
449	Jordan, L. W.	Nasal Fractures
450	Jordan, R. E.	Allergy in Otology
457	Kos	Inflammatory Perforation of the Ear Drum
458	Lassman	Prescription of Hearing Aids
464	Lieberman	Histopathology of Hearing Impairments
469	McQuiston	Endaural Radical Mastoidectomy
478	Pearlman	ENT Complaints in Old Age
481	Putney	Surgery of Neck Tumors
488	Robison	Allergic Sinusitis: Treatment
489	Ryan	Headache
491	Schall	Cancer of the Nose & Sinuses
492	Schattner	Rhinoplasty by Reassembly of Nasal Elements
493	Scheidrup	Autonomic Neuro-anatomy of Head & Neck
511	Wilson	Otoplasty for Protruding Ears
515	Zizmor	Roentgen Diagnosis

Key Th-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
408	Brown	Chronic Suppurative Otitis Media
409	Canfield	Audiology for the Practicing Otologist
416	Craft	Nasal Allergy
420	Derlacki	Role of Allergy in Deafness
425	Glorig	Hearing Aid Selection
426	Goldman	Vasomotor Rhinitis
427	Goodhill	Management of Tinnitus
429	Hampsey	Sinusitis in Children
433	Hedgecock	Clinical Audiometry
436	Hilger	Therapeutic Approaches to the Inner Ear
444	Hunnicutt	The Chronically Congested Nose
445	Ireland	Common Sense Treatment of the Office Patient
456	Kobrak	Treatment of Middle Ear Deafness
459	Lederer	Diagnostic Approaches and Recent Trends
460	LeJeune	Intralaryngeal Surgery
473	Morrison	Laryngeal Paralysis
474	Nash	Occupational Deafness
476	Ogura	Laryngectomy & Neck Dissection
480	Pressman	Partial Laryngectomies
486	Rinkel	Food Allergy in Otolaryngologic Practice
487	Roberts	Management of Nasal Fractures
499	Shuster	Vestibular Apparatus
502	Slaughter	Congenital Deformity of the Ear
503	Sullivan	Facial Paralysis & Bell's Palsy
506	Tremble	Practical Therapeutics in Office Practice
507	Tschiassny	Labyrinthine Tests

News - - - Notes

INTERNATIONAL COUNCIL OPHTHALMOLOGY

A new INDEX OPHTHALMOLOGICUS will be published by the International Council of Ophthalmology containing the names and addresses of ophthalmologists, particulars of the ophthalmological societies and the main eye hospitals, institutes and ophthalmic periodicals throughout the world.

This volume will be obtainable at the XVII International Congress of Ophthalmology in September 1954 (Montreal and New York), price $2.50, or may be directly obtained from the secretary, Dr. A. C. Copper, Coehoornsingel 42, Zutphen, Holland, after the date of the Congress, price $2.75 or its equivalent in other currency.

AMERICAN ASSOCIATION OF ORTHOPTIC TECHNICIANS

On Tuesday, Wednesday and Thursday, September 14-16, 1954, during the meeting of the International Congress of Ophthalmology, the New York Eye and Ear Infirmary, the Manhattan Eye and Ear Infirmary and the Presbyterian-Columbia Orthoptic Clinics will hold open house for visitors. The Clinics at the New York Eye and Ear Infirmary and the Manhattan Eye and Ear Infirmary will be open to visitors all day on these dates, while the Presbyterian-Columbia Clinic will be open from 1:30 to 5 p.m. Various technics will be demonstrated on patients and round table discussions between technicians and doctors will follow.

The office of Miss Elizabeth Stark, 30 E. Fortieth St., New York, will also receive visitors from 1:30 to 5 p.m. on the above dates.

SECTION ON OPHTHALMOLOGY AMERICAN MEDICAL ASSOCIATION

The following officers were elected at the recent meeting of the Section on Ophthalmology, American Medical Association, in San Francisco: chairman, Dr. Erling Hansen; vice-chairman, Dr. Watson Gailey; and secretary, Dr. Harold G. Scheie.

The Prize in Ophthalmology was presented to Dr. Otto Barkan of St. Louis for his large part in popularizing modern concepts of glaucoma; for his writings and teachings that goniotomy occupies the prominent role in the surgery of congenital glaucoma today; and for his good work in the field of ophthalmology.

AMERICAN OPHTHALMOLOGICAL SOCIETY

The Ninety-first Annual Meeting of the American Ophthalmological Society is to be held at The Greenbrier, White Sulphur Springs, West Virginia, June 2, 3 and 4, 1955.

The officers for the year 1954-1955 are: president, Dr. Everett L. Goar; vice-president, Dr. Alan C. Woods; secretary-treasurer, Dr. Maynard C. Wheeler; and editor, Dr. Gordon M. Bruce.

LOUISIANA

The Mid-Winter Convention of the New Orleans Academy of Ophthalmology, January 31 through February 4, 1955, will feature a symposium on Ocular Motility by Francis Heed Adler, M.D., Harold W. Brown, M.D., Hermann M. Burian, M.D., Frank D. Costenbader, M.D., Walter H. Fink, M.D., George P. Guibor, M.D., Philip Knapp, M.D., and Kenneth C. Swan, M.D. The program will include round table discussion periods.

The registration fee of $75.00 includes associate membership in the Academy for the year 1955, as well as all other features of the convention.

PENNSYLVANIA

The Wills Eye Hospital Society will hold a luncheon on Tuesday, September 21, 1954, at 12:30 p.m., in the Palm Room at the Waldorf-Astoria Hotel in New York.

VIRGINIA

A Post Graduate Session in Ophthalmology and Otolaryngology sponsored by the Virginia Society of Ophthalmology and Otolaryngology will meet at the University of Virginia from November 30 to December 3, 1954.

The first two days, November 30 and December 1, will be devoted to otolaryngology lectures and the second two days, December 2 and 3, will be devoted to ophthalmological subjects. Those interested can contact Dr. Edwin Burton or Dr. G. Slaughter Fitz-Hugh on Market Street in Charlottesville, Va.

POSITIONS AVAILABLE

There are vacancies available for resident training in Otolaryngology, Endoscopy, Rhinoplasty, Allergy and Surgery of cancer of the head and neck at the Veterans Hospital, Kingsbridge Road, Bronx, New York. The residency is approved for three years and is supervised by consultants and attendants who are representatives of the Dean's Committee of the local medical schools. A basic science course is included at Columbia University. Salary ranges from $2640 to $3300 per annum.

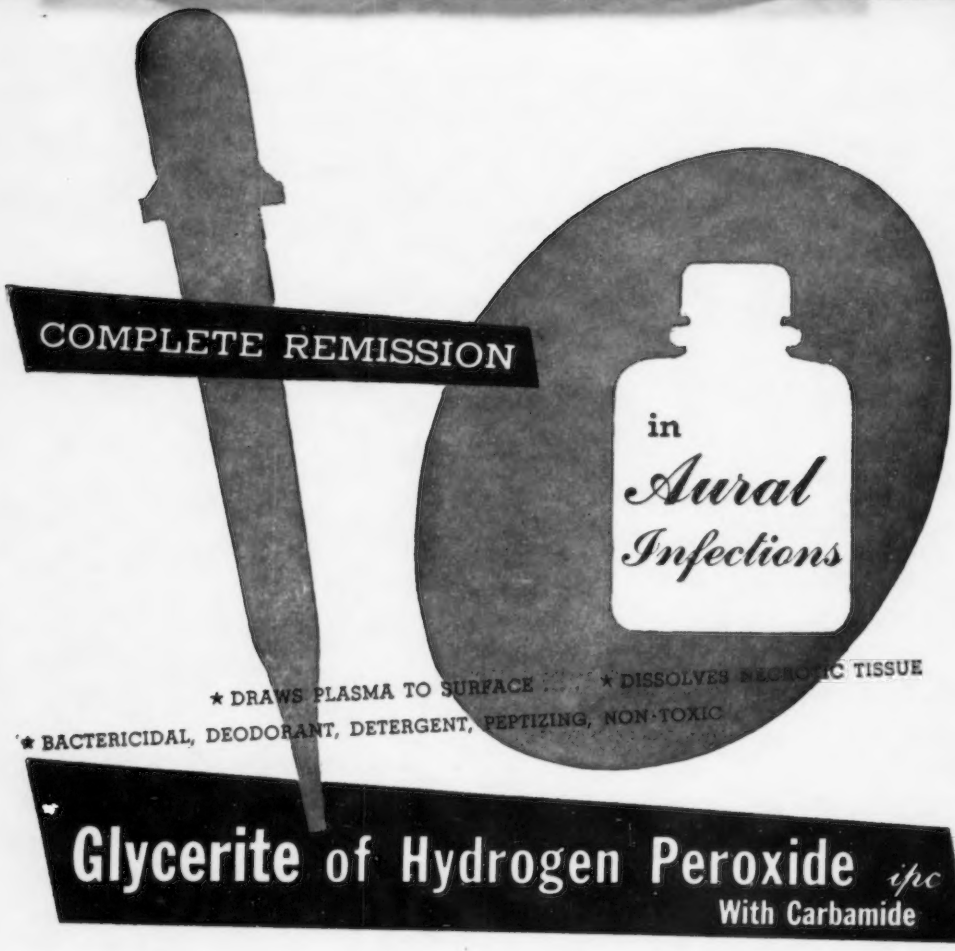
For information, write to Liaison Officer Dean's Committee, Veterans Hospital, 130 West Kingsbridge Road, Bronx 68, New York.

Fellowship in Allergy and Otolaryngology for a period of three months with a stipend of $200.00 per month. For further information, write to French K. Hansel, M.D., 1229 Missouri Theatre Building, 634 N. Grand Boulevard, St. Louis 3, Mo.

Wanted: Otolaryngologist or EENT physician to be associated with a doctor doing EENT. Has own building with 14 room modern air conditioned office. For further information write W. H. McKenzie, M.D., 800 South Lake Street, Fort Worth 4, Texas.

Listings of positions available should be sent to W. L. Benedict, M.D., 100 First Avenue Building, Rochester, Minn., by the fifth of the month preceding publication. They should include (1) type of physician wanted (ophthalmologist or otolaryngologist; diplomate, resident, etc.); (2) type of position to be filled; and (3) whom to write for further information. Unless otherwise requested, listings will be published once only.

The Academy will handle no further correspondence beyond the listing and assume no responsibility. Neither does it endorse nor guarantee any of the published listings.



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★ **BIBLIOGRAPHY**

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E., E., N., & T. Mo., 26:27, 1947.
Laryngoscope, 56:556, 1946.
New Eng. J. Med., 234:468, 1946.
Annals of Allergy, 4:33, 1946.
J. A. Ph., A., (Sc. Ed.) 35:304, 1946.

Literature on request.

Clinical studies concerned with the use of Glycerite of Hydrogen Peroxide in the treatment of chronic purulent otitis media demonstrated seventeen of twenty-nine patients in complete remission in 14 days and the remainder by the 38th day. The patients studied presented conditions existent for periods of 2 weeks to over 40 years. Previous treatment by the usual therapeutic means, including tyrothricin or penicillin, was ineffective in all cases.

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